PLink-AI

AI Computing Platform

8F5E2

Datasheet

Version V2.2

Date 2026-01-19

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Document History

Version	Date	Description of Change	Hardware Version
V 1.0	2022-09-25	1. Preliminary	V 1.0
V 1.1	2022-10-31	1. Update the product introduction; 2. Add product ordering information; 3. Add AGX ORIN related parameters.	V 1.0
V 2.0	2024-02-29	1. Change the product manual template; 2. Change product description; 3. Add interface functional test description.	V 1.0
V 2.1	2025-01-09	1. Modify font	V 1.0
V 2.2	2026-01-19	1. Modify Dimension Figure	V 1.0

Hardware Update History

Version	Date	Description of Change
V 1.0	2022-3-28	Initial Version

Electronic components and circuits are very sensitive to electrostatic discharge, although the company will design the main interface on the board card to do anti-static protection design, but it is difficult to do anti-static safety protection for all components and circuits. Therefore, it is recommended that you take ESD safety measures when handling any circuit board component.

ESD safety measures include but are not limited to the following:

1. Put the card in an ESD bag during transportation or storage. Do not take out the card until installation and deployment.
2. Before touching the board, release the static electricity stored in the body: Wear a grounding wrist strap.
3. Operate circuit boards only in electrostatic discharge safe areas.
4. Avoid moving circuit boards in carpeted areas.
5. Avoid direct contact with electronic components on the board through edge contact.

Table of Contents

1 Introduction

The 8F5E2 is a rugged AI industrial PC that can be used with the NVIDIA® Jetson™ AGX Xavier/Orin core module. The main interface is designed for electrostatic safety protection, using a high-reliability power application scheme, the input power supply has overvoltage and reverse polarity protection function, with a variety of external interfaces, internal interface devices are wide temperature model.

8F5E2 standard can support the expansion of multiple full-speed Gigabit Ethernet, support the expansion of USB3.0 signal, SSD memory card, SATA signal, 4G communication module, all kinds of video acquisition/output cards, AD acquisition cards, multiple serial port cards, sound acquisition/output cards, multi-function IO cards, etc. (The standard products do not include the above expansion functions. Please contact sales for extensions). It is suitable for intelligent scenarios such as vehicle-road collaboration.

2 Specifications

	Feature
Carrier Board	Y-C8
Module	NVIDIA Jetson AGX Orin / AGX Xavier Series Modules
Temperature	-20 ~ +55℃
Dimensions (L×W×H)	238mm*222mm*67mm (Including I/O ports and mounting holes)
Weight	2590g

Power Supply	Spec
Input Type	DC
Input Voltage	+12V

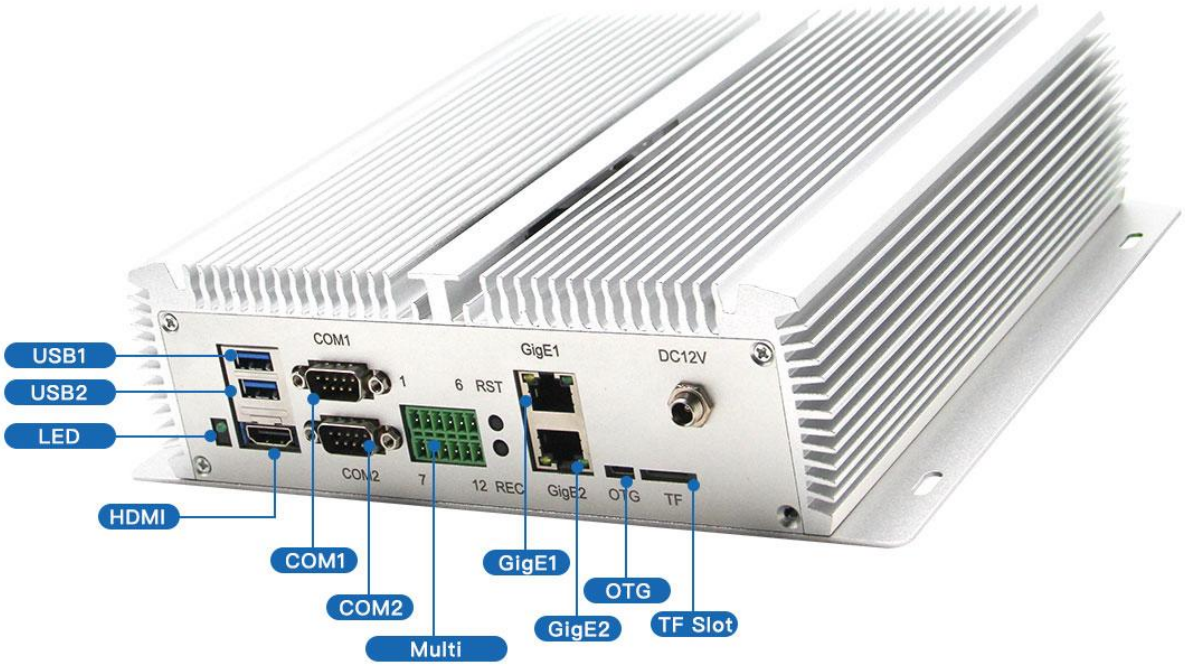
I/O Ports

Interface	Quantity	Interface	Quantity
USB3.0 Type-A	2	Micro USB	1
RJ45	2	HDMI 2.0	1
GPIO	4	RS232	2
CAN	2	Micro SD Card Slot	1
Recovery Button	1	Reset Button	1
COM1	1	COM2	1
Note: When used with the Jetson AGX Xavier module, a mini PCIe interface is not available, and an M.2 Key M interface is not available. A USB interface only supports USB2.0 functions.			

NVIDIA Jetson Series Modules Technical Specifications

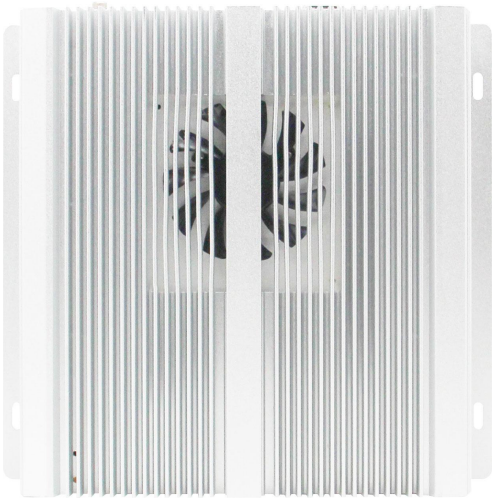
Module	Jetson AGX Xavier 32GB	Jetson AGX Xavier 64GB	Jetson AGX Orin 32GB	Jetson AGX Orin 64GB
AI Performance	32 TOPS		200 TOPS	275 TOPS
GPU	512-core NVIDIA Volta architecture GPU with 64 Tensor Cores		1792-core NVIDIA Ampere architecture GPU with 56 Tensor Cores	2048-core NVIDIA Ampere architecture GPU with 64 Tensor Cores
CPU	8-core NVIDIA Carmel Arm® v8.2 64-bit CPU 8MB L2 + 4MB L3		8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	12-core Arm® Cortex®-A78AE v8.2 64-bit CPU 3MB L2 + 6MB L3
Memory	32GB 256-bit LPDDR4x 136.5GB/s	64GB 256-bit LPDDR4x 136.5GB/s	32GB 256-bit LPDDR5 204.8 GB/s	64GB 256-bit LPDDR5 204.8 GB/s
Storage	32GB eMMC 5.1		64GB eMMC 5.1	
Video Encode	4x 4K60 (H.265) 8x 4K30 (H.265) 16x 1080p60 (H.265) 32x 1080p30 (H.265)		1x 4K60 (H.265) 3x 4K30 (H.265) 6x 1080p60 (H.265) 12x 1080p30 (H.265)	2x 4K60 (H.265) 4x 4K30 (H.265) 8x 1080p60 (H.265) 16x 1080p30 (H.265)
Video Decode	2x 8K30 (H.265) 6x 4K60 (H.265) 12x 4K30 (H.265) 26x 1080p60 (H.265) 52x 1080p30 (H.265)		1x 8K30 (H.265) 2x 4K60 (H.265) 4x 4K30 (H.265) 9x 1080p60 (H.265) 18x 1080p30 (H.265)	1x 8K30 (H.265) 3x 4K60 (H.265) 7x 4K30 (H.265) 11x 1080p60 (H.265) 22x 1080p30 (H.265)
Power	10W - 30W		15W - 40W	15W - 60W

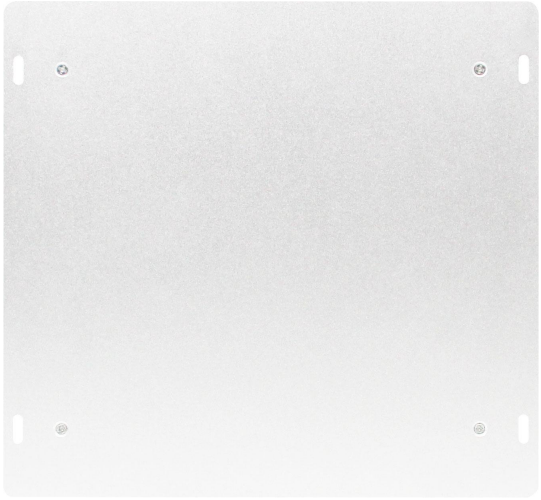
3 External I/O Ports

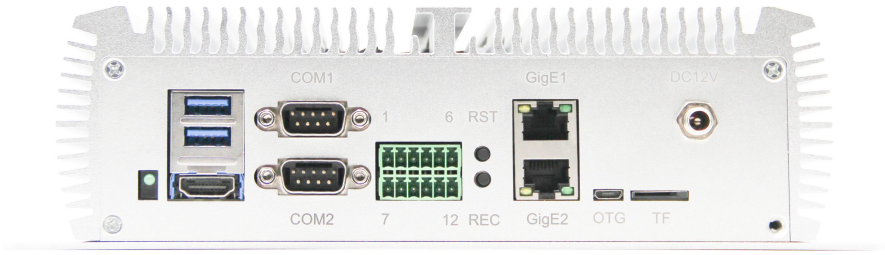


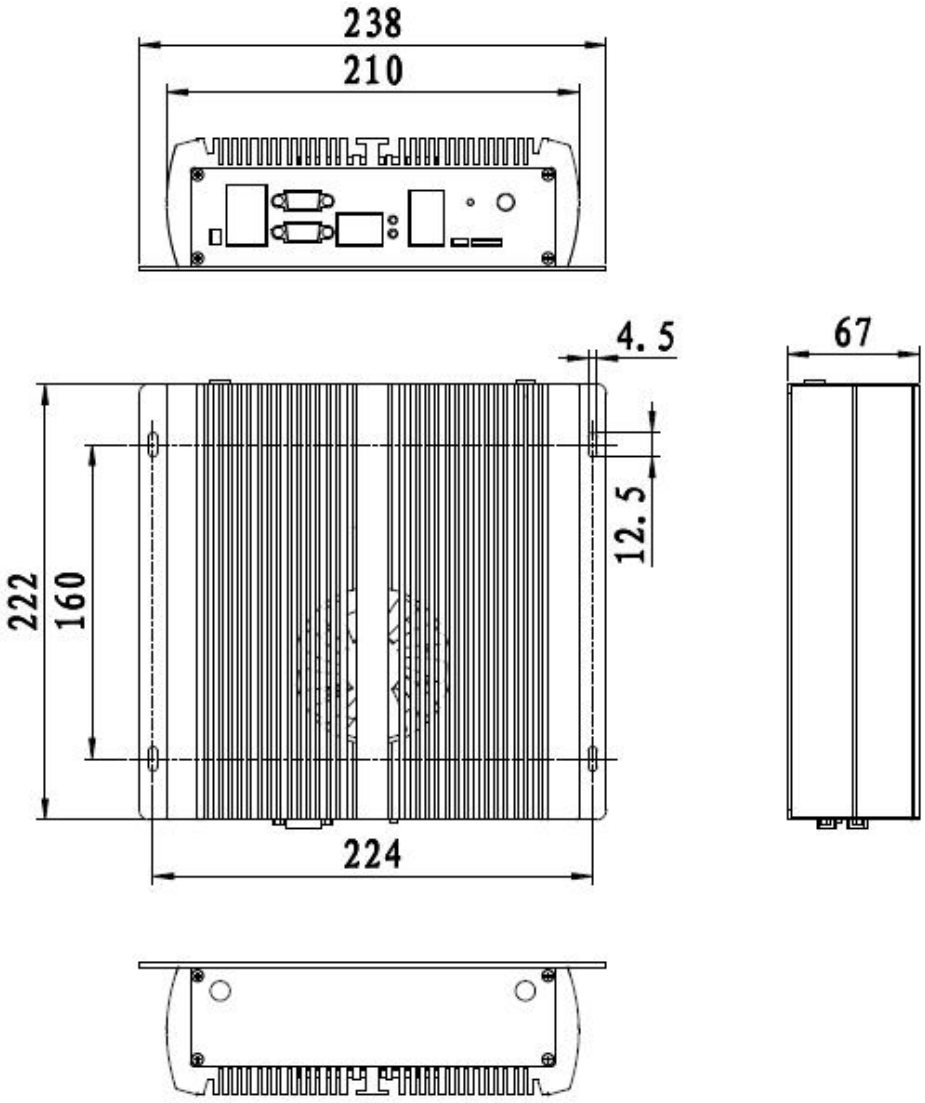
Sign	Function	Sign	Function
USB1/ USB2	USB3.0 Type A Connector	HDMI	Type-A HDMI Connector
COM1/2	RS232 Serial Port	Multi	Multi-function IO Header
RST	Reset Button	REC	Recovery Button
LED	Power Led	TF Slot	TF Card Slot
GigE	RJ45 Jack (10/100/1000Mbps Ethernet)		
OTG	Micro USB Connector (Only use to flash system)		

4 All-Round Display








238
210
4.5
67
12.5
222
160
224

5 Connector Description

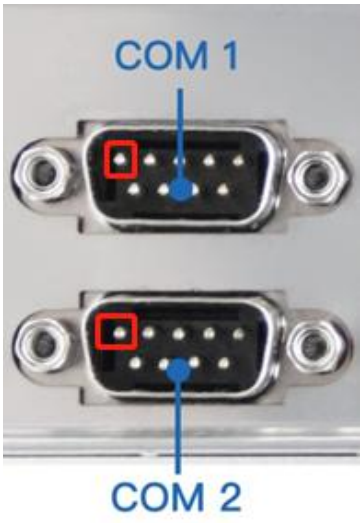
DB9 Connector（COM1/COM2）

Function	RS232 Serial Port
Sign	COM1/COM2
Type/Model	DB9 Connector

Pin definition

Pin	Signal	Pin	Signal
1	NC	2	RX_RS232
3	TX_RS232	4	NC
5	NC	6	NC
7	NC	8	NC
9	NC	10	NC

Pin 1 position: right picture identification.



Device Names

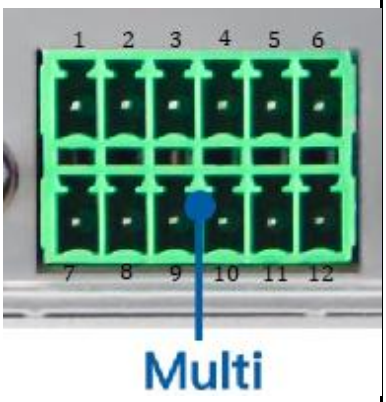
模组	AGX ORIN		AGX Xavier
	Jetpack 5.*	Jetpack 6.*	
COM1	/dev/ttyTHS4	/dev/ttyTHS2	/dev/ttyTHS1
COM2	/dev/ttyTHS0	/dev/ttyTHS0	/dev/ttyTHS0

Multi-function IO Interface

Function	CAN\GPIO
Sign	Multi

Pin definition

Pin	Signal	Pin	Signal
1	CAN1_H	2	3.3V
3	CAN1_L	4	GND
5	GND	6	GPIO08
7	CAN0_H	8	GPIO09
9	CAN0_L	10	GPIO17
11	GND	12	GPIO27(PWM)



GPIO Sysfs

	AGX Xavier		AGX ORIN
Jetpack Version	<Jetpack5.0	>=Jetpack5.0	
GPIO08	256	313(PBB.00)	325(PBB.01)
GPIO09	257	314(PBB.01)	324(PBB.00)
GPIO17	417	436(PQ.01)	444(PP.04)
GPIO27	393	419(PN.01)	433(PN.01)

RST / REC Button

Function	REC: Press the button and power on to enter the recovery mode; RST: Reset button.
Sign	REC / RST

6 Ordering Information

Order Type	Function
8F5E2	Rugged AI industrial computer adapted to NVIDIA® Jetson™ AGX ORIN /AGX Xavier series core modules

E-commerce Platform

Taobao Store Address：https://shop333807435.taobao.com/

Jingdong Store Address：https://mall.jd.com/index-11467104.html?from=pc

Ali International Station Address：https://plink-ai.en.alibaba.com/

7 Recovery Mode

Jetson core module can work in normal mode and Recovery mode. In Recovery mode, it can perform file system update, kernel update, Bootloader/UEFI update, BCT update and other operations.

To enter the Recovery mode, perform the following steps:

Power off the system.

Use a Micro-USB cable to connect the Micro-USB port (OTG) of the 8F5E2 to the Jetson development host USB port.

The Jetson development host should be Ubuntu18.04 or Ubuntu20.04 based on X86 architecture.

Press the Recovery key (REC) to power the system. Hold down the Recovery key (REC) for more than 3 seconds, and then release the Recovery key (REC).

When the system enters Recovery mode, you can perform subsequent operations.

8 Method of Application

- Make sure all external system voltages are turned off.
- Install necessary external cables. (For example: the display cable to connect to the HDMI monitor, the power input cable to power the system, the USB cable to connect the keyboard and mouse...)
- Connect the power cord to the power supply.
- 8F5E2 is automatically powered on by default. It can also be set to switch start. Please consult our sales and technical personnel for specific methods.

9 GPIO Test

8F5E2 leads to the 4-way CPIO of the Jetson core modules. Programmable output voltage 3.3V, please note that the input voltage does not exceed 3.3V.
Take the AGX ORIN module，L4T35.3.1，GPIO08 as an example:
The content after the '#' in the following command is a comment and does not need to be added when executing the command.

- sudo su
- echo 325 > /sys/class/gpio/export # Enable GPIO（Or initialize GPIO)
- echo out > /sys/class/gpio/PBB.01/direction
  #Set the GPIO input and output directions to out or in.
- echo 1 > /sys/class/gpio/PBB.01/value
  # Set the GPIO output high/low level to 1 for high and 0 for low.

#The preceding absolute path name is based on the actual path name generated after GPIO is enabled.
When set to the input state, you can only read values. When set to the output state, you can read and write values.

- cat /sys/class/gpio/PBB.01/value #Get GPIO value.

The output state can be measured using a multimeter to measure the voltage between the specific lead heel GND.

10 CAN Test

8F5E2 is equipped with two CAN signals when it is equipped with Jetson module. During test, connect the CAN_H of the device to the CAN_H of the device under test and the CAN_L to the CAN_L of the device under test.

The test command is as follows:

- sudo apt-get install busybox can-utils

#Writes the specified value to a register

Different modules need to write to the address of the register, and the value written is inconsistent. See the links at the end of this section for details.

- sudo busybox devmem 0x0c303020 w 0x458
- sudo busybox devmem 0x0c303018 w 0x400
- sudo busybox devmem 0x0c303010 w 0x458
- sudo busybox devmem 0x0c303008 w 0x400
- sudo modprobe can #Load the CAN bus subsystem support module
- sudo modprobe can_raw #Load the original CAN protocol module.
- sudo modprobe mttcan#Load CAN interface support
- sudo ip link set can0 type can bitrate 500000
  #Set CAN0 bit rate to 500k bps
- sudo ip link set can1 type can bitrate 500000
  #Set CAN1 bit rate to 500k bps
- sudo ip link set up can0 #Open CAN0
- sudo ip link set up can1 #Open CAN1
- candump can0 #Set CAN0 to receive
- cansend can1 1F223344#1122334455667788

  # # Open another terminal to send data through CAN1. After sending, there will be data echo at the receiving end of CAN0.

  See links for different module register values:

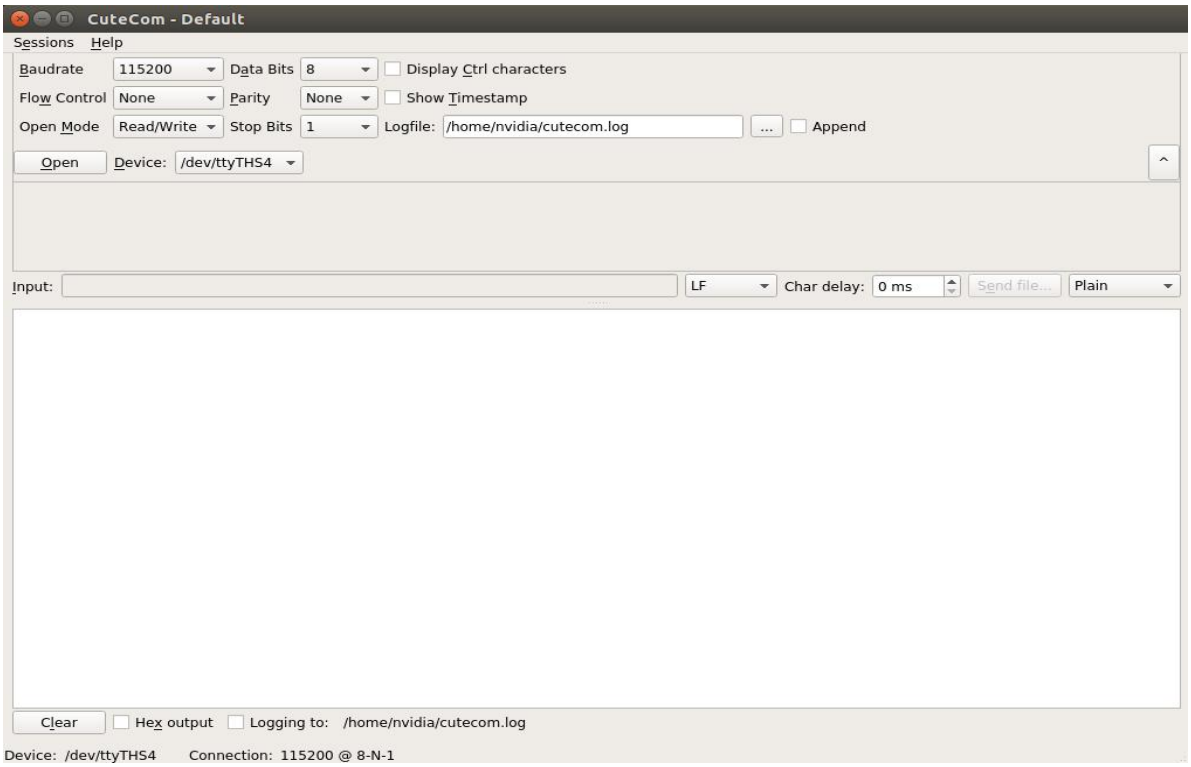
  Controller Area Network (CAN) — Jetson Linux Developer Guide documentation (nvidia.com)

11 Serial Port Test

8F5E2 is equipped with two RS232 serial ports as standard when it is paired with Jetson module, which can be used for self-collecting test of a single serial port and interconnection test of two serial ports. The command is as follows:

- sudo apt-get install cutecom #Install the serial port test tool
- sudo cutecom # For a single-serial port test, you only need to open one cutecom interface on each terminal. For a two-serial port connection test, use two terminals and open two cutecom interfaces.
- When testing a single serial port, connect the RX of a single serial port to the TX. When the two serial ports are connected, the RX of UART1 is connected to the TX of UART2, and the TX of UART1 is connected to the RX of UART2.

The interface of the serial port test tool cutecom is as follows:



12 Special Instructions

- Initial system username: **nvidia** , password: **nvidia**， no password su. If root permissions are required, use sudo to grant permissions, or use sudo su to access the root user.
- The pre-installed system is pure by default and does not contain Jetpack software. You can use the following command to install the software. Do not replace or modify the default software source before installation:
    - sudo apt-get update
    - sudo apt-get install nvidia-jetpack
- It can also be installed over the network using SDKmanager software.
- For more information please refer to :Jetson wiki (plink-ai.com)