Room 718, Financial Kemao Building, 15 Shangdi Xinxi Road, Haidian District, Beijing

8F1E1
Datasheet

Revision	Date	Changes	Hardware Version
V1.0	2022-3-21	Preliminary Release	V1.0
V1.1	2022-9-18	Edited product order information and AGX ORIN related parameters	V1.0

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.

Plink 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 any difficulties after using the product, please freely contact us directly.   Our tech can help you with product installation and difficulties.

Our support section is available 24 hours a day, 7 days a week on our website at: http://www.plink-ai.com/en/Jetson.html. Our technical support is always free.

ESD Warning

Electronic components and circuits are very sensitive to electrostatic discharge. Although the company will do anti-static protection design for the main interface on the circuit board when designing circuit board products, it is difficult to do anti-static safety protection for all components and circuits. Therefore, it is recommended to follow ESD safety precautions when handling any circuit board component. ESD protection measures include but are not limited to the following:

- During transportation or storage, place the card in an ESD bag and do not take it out until installation.
- Release the static electricity before touching the board. Using a discharge grounding wrist strap.
- Operate the circuit board only in electrostatic discharge safety area.
- Avoiding move circuit boards in carpeted areas.
- Avoiding contact with components, try to handle the board by the edges.

Precautions

- Before using the product, please read this manual carefully and keep it properly for future reference
- Please pay attention to and follow all warnings and guidelines marked on the product
- Please use the matching power adapter to ensure the stability of current and voltage
- Please use this product in a cool, dry and clean place
- Do not use this product in the environment of alternating cold and heat to avoid condensation and damage to internal components
- Do not splash any liquid on the product. It is forbidden to use organic solvent or corrosive liquid to clean the product
- Do not use this product in dusty and messy environment. If it is not used for a long time, please pack the product
- Do not use it in an environment with excessive vibration. Any falling or knocking may damage the lines and components
- Do not plug and unplug the core board and peripheral modules when the power is on
- Do not repair or disassemble the product by yourself. If the product fails, contact the company for repair in time
- Do not modify or use unauthorized accessories by yourself, and the resulting damage will not be covered by warranty

Limited Product Warranty

- Warranty period -Bottom plate and core plate: 3 years (non-human damage)
- Contact information

    Contacts: RMA

    Address: Room 718, Jinrongkemao Plaza, No. 15 Shangdi Xinxi Road, Haidian District, Beijing, China

    E-mail: sales@plink-ai.com

    Telephone:+86-010-62962285

- Mailing instructions: Please contact the sale staff of the company in advance, then arrange technicians to verify and eliminate the errors caused by misoperation as soon as possible. After verification, please mail the equipment to the company. Please attach a list of items and the reason for failure when mailing for easy verification, so as to avoid loss and damage in the process of express delivery.

Introduction

8F1E1 is a computer with NVIDIA® Jetson™ AGX Xavier and AGX ORIN 32GB core modules.The main interface is designed for electrostatic safety protection, and a high-reliability power supply application scheme is adopted. The input power supply has over voltage and reverse polarity protection functions, and has a wealth of external interfaces. The internal interface devices are all wide-temperature models.

8F1E1 provides multiple independent Gigabit network ports through internal M.2 ports, miniPCIe ports, and PCIE ports, which is suitable for multi-network port scenarios. 8F1E1 standard model is equipped with switched-mode power supply, rated up to 300W.

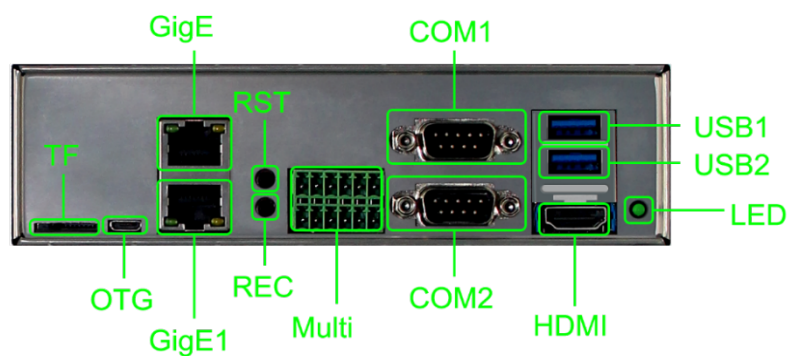## Product Features and Specifications

- Product size：391mm×303mm×185 mm

- Power requirements：220V

- Working temperature： -20~+65℃

- Weight：7700g

- Optional expansion:32GB ~ 1TB SSD storage

- Maximum scalability 512g TF card memory

- 4G and WIFI module can be extended

- The initial setting can be reset and restored

*Remark：when this model is equipped with AGX Xavier module, only one USB Type A supports USB3.0, Supports only one M.2Key M connector and one miniPCIe connector

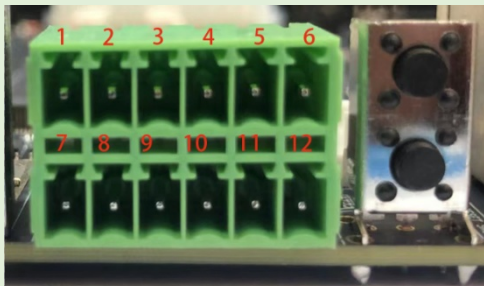## Compare Jetson Orin and Jetson Xavier Specifications

Modules	Jetson AGX Xavier	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
GPU Max Frequency	1377 MHz	939 MHz	1.3 GHz
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
CPU Max Frequency	2.2 GHz		
DL Accelerator	2x NVDLA	2x NVDLA v2	
DLA Max Frequency	1.4 GHz	1.4 GHz	1.6 GHz
Vision Accelerator	2x PVA	1 x PVA v2	
Memory	32GB 256-bit LPDDR4x 136.5GB/s	32GB 256-bit LPDDR5 204.8GB/s	64GB 256-bit LPDDR5 204.8GB/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

Panel and interface IDS

Interface function description

Feature	QTY	Designator	Description
Power indicator	1	LED	System power indicator
USB	2	USB1	Type AUSB3.0 standard connector, supports USB3.1 function, and backward compatible
		USB2	Type AUSB3.0standard connector； When equipped with AGX ORIN, it supports USB3.1 function and is backward compatible; When equipped with AGX Xavier, only the USB2.0 function is supported.
Video	1	HDMI	Type AHDMI display output interface
Serial interface	2	COM1	DB9 connector, RS232 level standard interface <table><tr><td>Modules</td><td>Device's Name</td></tr><tr><td>AGX Xavier</td><td>/dev/ttyTHS1</td></tr><tr><td>AGX ORIN</td><td>/dev/ttyTHS4</td></tr></table>
		COM2	DB9 connector, RS232 level standard interface <table><tr><td>Modules</td><td>Device's Name</td></tr><tr><td>AGX Xavier</td><td>/dev/ttyTHS0</td></tr><tr><td>AGX ORIN</td><td>/dev/ttyTHS0</td></tr></table>
Button	1	REC	Recovery button, Press and hold the recovery key, and then power on to make the device enter the recovery mode
Button	1	RST	Reset button
Net interface	2	GigE1	10 / 100 / 1000m adaptive RJ45 network interface
		GigE	GigE is optional, please contact the sales department if necessary
Micro USB connector	1	OTG	Type B micro USB interface When equipped with AGX Xavier, it's used for burning system and OTG function output When equipped with AGX ORIN, only used for burning system
TF slot	1	TF	Micro TFCard Holder

Feature	Qty	Designator	Description
GPIO	1	Multi	Multi IO interface

Multi IO interface

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 the mapping numbers as below:

Modules	AGX Xavier		AGX ORIN
Jetpack Version	< Jetpack5.0	>= Jetpack5.0	
GPIO08	256	313	325
GPIO09	257	314	324
GPIO17	417	436	444
GPIO27	393	419	433

The signal pin sequence of this interface is shown in the figure below.

Typical Installation

- Ensure power off of all external system

- Install the necessary external cables.(e.g. display cable connected to HDMI monitor, power input cable supplying power to the system, USB cable connecting keyboard and mouse...)

- Connect the power cord to the power supply

- 8F1E1 could be set as default automatic power on or switch on. Please consult the sales and technical staff of our company for specific methods.

Recovery Mode

Jetson core module can work in normal mode and recovery mode. It can be operated in recovery mode to file system update, kernel update, boot loader update, BCT update and other operations

Step in Recovery mode:

- Turn off the system power supply

- Use a Micro-USB cable to connect OTG port of the 8F1E1 with USB of the Jetson developing host

- Press and hold on Recovery button(REC) to supply system power. Keep REC button for 3seconds above, then release the recovery button

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

Order Information

Model	Description
AGX32-8F1E1	AI industrial computer with NVIDIA Jetson™ AGX Xavier series core modules (standard model)
ORIN32-8F1E1	AI industrial computer with NVIDIA Jetson™ AGX ORIN series core modules (standard model)
AGX32-8F1EN	AI industrial computer with NVIDIA Jetson™ AGX Xavier series core modules, In the model, N is the total number of network ports in the whole machine. When the number of network ports is more than 7, the hard disk cannot be added. If you need to increase the hard disk, please communicate with the company's sales staff in advance.
ORIN32-8F1EN	AI industrial computer with NVIDIA Jetson™ AGX ORIN series core modules In the mode, N is the total number of network ports in the whole machine. When the number of network ports is more than 9, if you want to add a hard disk, you have to add it under the module. So, in order to prevent the module from disassembling damage, please communicate with our sales staff in advance.
	If you want to add other function modules inside of the whole machine, please contact our sales in advance to determine the feasibility of a relevant customization scheme

E-commerce direct purchase

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

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

Alibaba：https://plink-ai.en.alibaba.com/