

8F4E1

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



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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, Jinrongkema Plaza, No. 15 Shangdi Xinx Road, Haidian District, Beijing, China

E-mail: sales@plink-ai.com

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- 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

The 8F4E1 hardware platform is an ITX-type computing platform that combines the energy-efficient NVIDIA® Jetson™ AGX Xavier /Orin core module and the AI-enabled NVIDIA RTX 6000/A6000 GPU. Direct access to the NVIDIA Clara AGX/ Holoscan development kit. The development kit comes with end-to-end reference applications for sensor processing, image reconstruction, AI and visualization, which can help developers get started quickly and reduce overall development time. All necessary libraries and components are pre-selected to enable an out-of-the-box software development environment. Each reference application utilizes the necessary IO components and drivers to move data and feed it into the processing pipeline on the RTX 6000 /A6000 GPU, providing a functionally tested data path setup.

Product Features and Specifications

- Product size: 146mm×335mm×257 mm
- Power requirements: 220V
- Working temperature: -20~+65℃
- Weight: 5050g
- 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

RTX 6000 /A6000 SPECIFICATIONS

	RTX 6000	RTX A6000
GPU Memory	24GB GDDR6	48GB GDDR6
NVIDIA CUDA Cores	4608	10752
NVIDIA Tensor Cores	576	336
NVIDIA RT cores	72	84
NVIDIA NVLink bandwidth	100GB/s (bidirectional)	112.5GB/s (bidirectional)
Error-correcting code (ECC)	Yes	Yes
Single-Precision Performance	16.3 TFLOPS	38.7 TFLOPS
Tensor Performance	130.5 TFLOPS	309.7 TFLOPS
System Interface	PCI Express 3.0 x 16	PCI Express 4.0 x 16
Max Power Consumption	295 W	300 W
Form Factor	4.4" H x 10.5" L dual slot	4.4" H x 10.5" L dual slot
Display Connectors	4 x DP 1.4	4 x DP 1.4
Memory interface	384-bit	384-bit
Memory Bandwidth	Up to 672 GB/s	Up to 768 GB/s
Thermal Solution	Active	Active



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



TELEPHONE

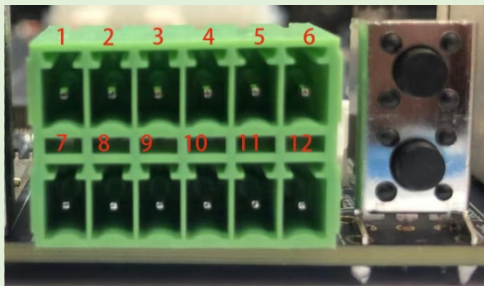
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Panel and interface IDS



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	
			Modules	Device's Name
			AGX Xavier	/dev/ttyTHS1
			AGX ORIN	/dev/ttyTHS4
		COM2	DB9 connector, RS232 level standard interface	
			Modules	Device's Name
			AGX Xavier	/dev/ttyTHS0
			AGX ORIN	/dev/ttyTHS0
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																												
			<table><tr><th>Pin</th><th>signal</th><th>pin</th><th>signal</th></tr><tr><td>1</td><td>CAN1_H</td><td>2</td><td>3.3V</td></tr><tr><td>3</td><td>CAN1_L</td><td>4</td><td>GND</td></tr><tr><td>5</td><td>GND</td><td>6</td><td>GPIO08</td></tr><tr><td>7</td><td>CAN0_H</td><td>8</td><td>GPIO09</td></tr><tr><td>9</td><td>CAN0_L</td><td>10</td><td>GPIO17</td></tr><tr><td>11</td><td>GND</td><td>12</td><td>GPIO27(PWM)</td></tr></table>	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)
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			GPIO the mapping numbers as below:																												
<table><tr><th>Modules</th><th colspan="2">AGX Xavier</th><th>AGX ORIN</th></tr><tr><th>Jetpack Version</th><td>< Jetpack5.0</td><td>>= Jetpack5.0</td><td></td></tr><tr><th>GPIO08</th><td>256</td><td>313</td><td>325</td></tr><tr><th>GPIO09</th><td>257</td><td>314</td><td>324</td></tr><tr><th>GPIO17</th><td>417</td><td>436</td><td>444</td></tr><tr><th>GPIO27</th><td>393</td><td>419</td><td>433</td></tr></table>	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							
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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
- 8F4E1 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 8F4E1 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
AGX32-8F4E1	AI industrial computer with NVIDIA Jetson™ AGX Xavier series core modules (standard model)
ORIN32-8F4E1	AI industrial computer with NVIDIA Jetson™ AGX ORIN series core modules (standard model)
AGX32-8F4EN	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.
ORIN32-8F4EN	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.
Note: The Jetson AGX Xavier /Orin GPU and multimedia codecs cannot be used simultaneously with the RTX 6000/A6000 GPU and multimedia codecs. RTX 6000/A6000 GPU is optional. 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/>