

Jetson AGX Orin 32GB H01 Kit



Datasheet V1.0



Product Description

Jetson AGX Orin 32GB H01 Kit is a powerful and compact intelligent kit to bring up to 200 TOPS modern AI performance to the edge, which offers up to 10X the performance of Jetson Xavier NX and up to 6X the performance of Jetson AGX Xavier. Combining the NVIDIA Ampere™ GPU architecture with 64-bit operating capability, AGX Orin integrates advanced multi-function video and image processing, and NVIDIA Deep Learning Accelerators.

The full system includes one Jetson AGX Orin™ production module, a heatsink with a cooling fan, a case and a power adapter, while being an alternative option for the Jetson AGX Orin Dev Kit. It has a carrier board including PCIe X16, GbE, 10GbE, 3x USB 3.2, HDMI 2.1, M.2 Key M, M.2 Key E, 2.4/5GHz Wi-Fi, Bluetooth, 16 lane MIPI CSI-2, 40-Pin header. Jetson AGX Orin 32GB H01 Kit is preinstalled with Jetpack 5.0.2, simplifies development, and fits for deployment for edge AI solution providers working in video analytics, object detection, natural language processing, medical imaging, and robotics across industries of smart cities, security, industrial automation, smart factories.



Specifications

Module

AI Performance	200 TOPS
GPU	1792-core NVIDIA Ampere GPU with 56 Tensor Cores
CPU	8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU2MB L2 + 4MB L3

DL Accelerator	2x NVDLA v2.0
Vision Accelerator	1 x PVA v2.0
Memory	32 GB 256-bit LPDDR5204.8 GB/s
Storage	64GB eMMC 5.1
Power	15W - 40W
PCIe	Up to 2 x8 + 2 x4 + 2 x1(PCIe Gen4, Root Port & Endpoint)
CSI Camera	Up to 6 cameras (16 via virtual channels**) 16 lanes MIPI CSI-2D-PHY 2.1 (up to 40Gbps) C-PHY 2.0 (up to 164Gbps)
Video Encoder	1x 4K60 3x 4K30 6x 1080p60 12x 1080p30 (H.265) 1x 4K60 2x 4K30 5x 1080p60 11x 1080p30 (H.264)
Video Decoder	1x 8K30 2x 4K60 4x 4K30 9x 1080p60 18x 1080p30 (H.265) 1x 4K60 2x 4K30 5x 1080p60 11x 1080p30 (H.264)

USB	3x USB 3.2 gen2 + 4x USB 2.0
Display	1x 8K60 multi-mode DP 1.4a (+MST)/eDP1.4a/HDMI 2.1
Networking	10/100/1000 BASE-T Ethernet
Mechanical	100mm x 87mm699-pin connector Integrated Thermal Transfer Plate

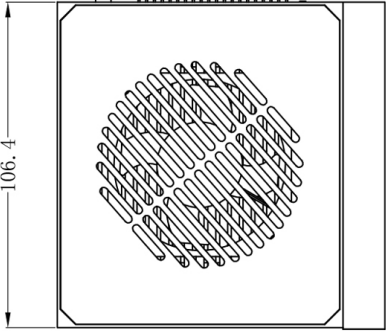
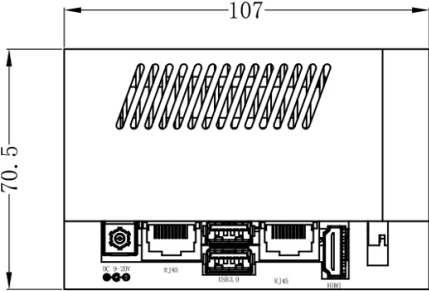
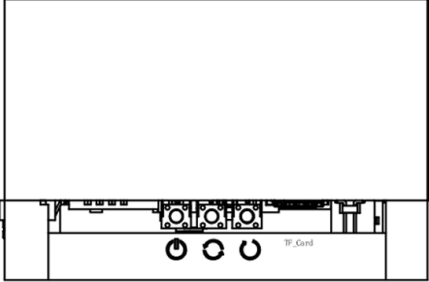
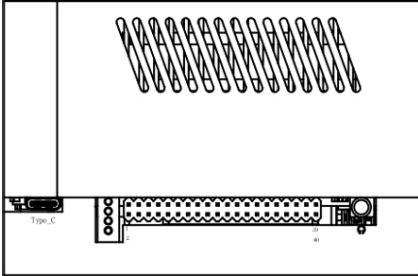
Carrier Board Interface Description

PCB Size / Overall Size	105mm x 105mm
Display	1x HDMI 2.1
Ethernet	1x GbE, 1x10GbE
USB	2x USB 3.2 Type-A (Integrated USB 2.0), 1x USB 3.2 Type-C (Integrated USB 2.0)
M.2 Key M	1x M.2 Key M
M.2 Key E	1x M.2 Key E (pre-installed WIFI+BT: 8265.NGWMG.NV 949399)
Camera	1x 120P Official carrier board camera interface (16 lane MIPI CSI-2)
164 PCIe port	x16 PCIe slot supporting x8 PCIe Gen4 (164P BTB expansion interface)
microSD card slot	1x microSD card slot
Audio Jack	1x 3.5mm audio jack
RTC	1x 2-Pin RTC connector
Fan	1x 4-pin Fan (5V PWM)
RS485	1x RS485 (3P 1.5mm pitch)
RS232	1x RS232 (3P 1.5mm pitch)
Misc.	40-pin header, 1* SPI Bus(+3.3V Level), 6* GPIO(+3.3V Level), 1x CAN, Force Recovery, Reset and Power ON/ OFF buttons, 12V/2A 2-pin power output
Power Supply	+9---+20V DC Input @ 8A

Environmental

Operating Temperature	-25 °C to +70 °C
Storage Humidity	10%-90% non-condensing environment

Dimensions

Top view (Unit:mm)	Front view (Unit:mm)
	
Left view (Unit:mm)	Back view (Unit:mm)
	

Interfaces

Front Interfaces



Interface Name	Interface description
HDMI 2.1	1 Channel HDMI 2.1 interface
USB 3.2 Type-A	2 x USB3.2 Type-A interface(Compatible with USB2.0)
RJ45	Independent 1 x GbE and 1 x 10GbE port
Barrel Jack	+9---+20V DC Input @ 8A

Note: This device boots up automatically when plugged in

Back Interfaces



Back View

Interface Name	Interface description
USB 3.2 Type-C	For data transmission (enter recovery mode)
Audio jack	Supports audio out
40-pin GPIO	Supports I2C, UART, SPI, CAN, I2S, PWM

40-Pin Multifunctional GPIO port

PIN	Signal Name	PIN#	Signal Name	PIN	Signal Name	PIN#	Signal Name
1	+3.3V			2	VDD_5V		
3	I2C_GP5_ DAT_3V3			4	VDD_5V		
5	I2C_GP5_ CLK_3V3			6	GND		
7	MCLK05_3V3	L57	MCLK05	8	UART1_TX_3V3	K53	UART1_TX
9	GND			10	UART1_RX_3V3	K54	UART1_RX
11	UART1_RTS_3V3	L51	UART1_RTS	12	I2S3_SCLK_3V3	C59	I2S3_SCLK
13	PWM01_3V3	K57	PWM01	14	GND		
15	GPIO27_ PWM2_3V3	H52	GPIO27	16	GPIO8_AO_ DMIC_IN_DAT	B62	GPIO8
17	VDD_3V3			18	GPIO35_ PWM3_3V3	L50	GPIO35

PIN	Signal Name	PIN#	Signal Name	PIN	Signal Name	PIN#	Signal Name
19	SPI1_MOSI_3V3	D55	SPI1_MOSI	20	GND		
21	SPI1_MISO_3V3	A56	SPI1_MISO	22	GPIO17_3V3	A54	GPIO17
23	SPI1_SCK_3V3	J57	SPI1_SCK	24	SPI1_CS0_3V3	E55	SPI1_CS0_N
25	GND			26	SPI1_CS1_3V3	B56	SPI1_CS1_N
27	I2C_GP2_DAT_3V3	K61	I2C2_DAT	28	I2C_GP2_CLK_3V3	J61	I2C2_CLK
29	CAN0_H	D59	CAN0_DOUT	30	GND		
31	CAN0_L	F58	CAN0_DIN	32	GPIO9_CAN1_GPIO0	C61	GPIO9
33	CAN1_DOUT	H61	CAN1_DOUT	34	GND		
35	I2S3_FS_3V3	C60	I2S3_FS	36	UART1_CTS_3V3	H54	UART1_CTS
37	CAN1_DIN	B61	CAN1_DIN	38	I2S3_SDIN_3V3	J59	I2S3_SDIN
39	GND			40	I2S3_SDOUT_3V3	K59	I2S3_SDOUT



Side View

Interface Name	Interface description
Power Button	Turn on the device after performing software shutdown
Recovery Button	Enter recovery mode
Reset Button	Reboot the device