

Apex Dual Orin产品规格书

产品简介 Brief

APEXDUAL ORIN是一款超大算力、低功耗、小体积的适用于自动驾驶领域商用车、无人配送、无人清扫等非乘用车车型的通用域控制器。

产品搭载2个英伟达Jetson AGX Orin模组，以及英飞凌TC397安全MCU，产品可以接入激光雷达、摄像头、毫米波雷达、惯导等多种传感器，对多传感器的数据进行精准融合，完成自动驾驶感知计算，构建出准确的定位和环境感知模型，并对车辆行为做出决策，是实现单车智能的核心计算大脑。



特性 Features

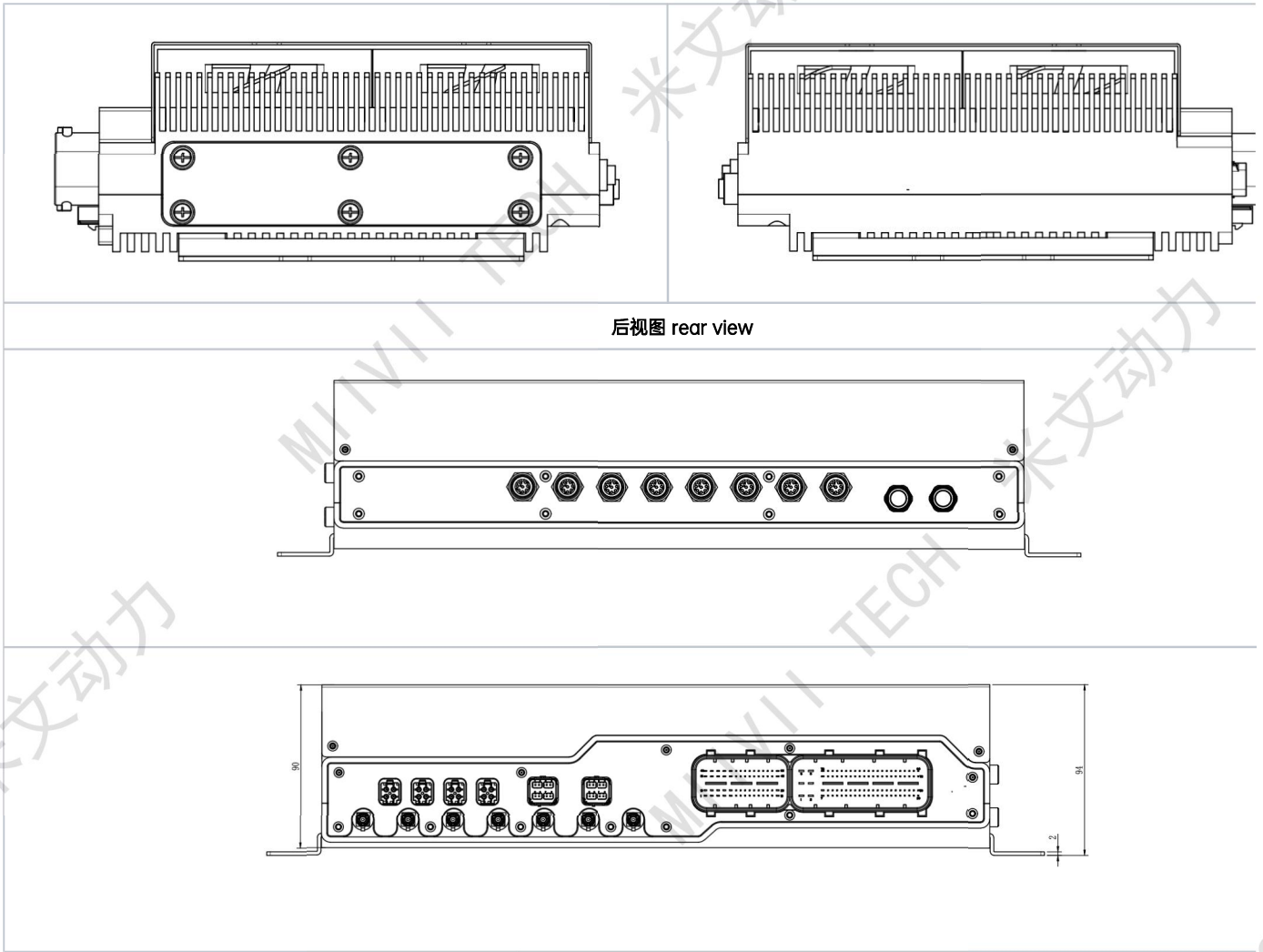
- 超大算力，拥有400/550TOPS SOC算力支撑
- 接口丰富，预留了各类网络接口，GMSL接口，同步接口等丰富高速接口，支持多种通讯方式（100/1000BaseT1、CAN、LIN、4G/5G、WIFI等）
- 亚纳秒级精度，毫秒级延迟的多传感器时钟同步功能
- 支持整车OTA
- 高可靠性，高冗余性
- 拥有模组熔丝/三方加密芯片组合的超强系统及算法硬件加密功能

注：设备有防尘放水处理，客户自行安装扩展模块存在困难，建议选购时预装相应扩展模块。

产品外观 Appearance

右视图 Right view

左视图 Left view



产品规格 Specifications

处理器模组 Processor

Processor	Jetson AGX Orin 32GB	Jetson AGX Orin 64GB
AI Performance	200 TOPS (INT8)	275 TOPS (INT8)
GPU	NVIDIA Ampere architecture with 1792 NVIDIA CUDA® cores and 56 tensor cores	NVIDIA Ampere architecture with 2048 NVIDIA CUDA® cores and 64 tensor cores
Max GPU Freq	930MHz	1.3GHz
CPU	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 Freq	2.2 GHz	
DL Accelerator	2x NVDLA v2.0	

DLA Max Frequency	1.4GHz	1.6GHz
Vision Accelerator	PVA v2.0	
Memory	32GB 256-bit LPDDR5 204.8GB/s	64GB 256-bit LPDDR5 204.8GB/s
Storage	64GB eMMC 5.1	
Video Encode	1x 4K60 3x 4K30 6x 1080p60 12x 1080p30 (H.265) H.264, AV1	2x 4K60 4x 4K30 8x 1080p60 16x 1080p30 (H.265) H.264, AV1
Video Decode	1x 8K30 2x 4K60 4x 4K30 9x 1080p60 18x 1080p30 (H.265) H.264, VP9, AV1	1x 8K30 3x 4K60 7x 4K30 11x 1080p60 22x 1080p30 (H.265) H.264, VP9, AV1

接口 I/O

类别 Category	接口 Interface	数量规格 Specification	备注 Remark
Network	Ethernet	8x 10/100/1000BASE-T	M12 A-code Connector, Four Each Orin
	Automotive Ethernet	4x1000Base-T1 4x100Base-T1	Two Each Orin Two Each Orin
Camera	GMSL camera	16xGMSL2	Eight Each Orin 4 in 1 Mini-Fakra Connector, Harness Side Breakout Terminal
Video	Video out	2xHDMI	One Each Orin HDMI Type A
USB	USB	4xUSB 3.1 Type A	Two Each Orin
		2xUSB 2.0 Type C (Image Flash)	One Each Orin 5V 1A
Serial Communication	CAN	2xCAN/CAN FD (M-Orin)	default 120 terminal resistance, optional remove
		2xCAN/CAN FD (S-Orin)	
	8xCAN/CAN FD (TC397)		
UART	UART	1xDebug (M-Orin)	RS422 backward compatible RS485
		3xRS232 (M-Orin) 2xRS422/485 (M-Orin)	
LIN	LIN	1xDebug (S-Orin)	From TC397
		1xRS232 (S-Orin) 1xRS422/485 (S-Orin) 2xRS232 (TC397)	
I/O	DIO	4xDI 4xDO (M-ORIN)	isolated In 0-12V, Out 3.3
		2xDI 2xDO (S-ORIN) 6xDI 6xDO (TC397)	
	Sync I/O	1xSYNC_IN (M-Orin) 1xSYNC_OUT (M-Orin) 1xSYNC_PPS (M-Orin)	SYNC_IN 0-12V, SYNC_OUT 3.3V, SYNC_PPS 3.3V

Extensions	TF卡	TF slot (M-Orin)	
	SIM卡	SIM slot (M-Orin)	For 4G/5G
	M.2	1xM.2 M Key 2280 (M-Orin)	for 2280 SSD
		1xM.2 M Key 2280 (S-Orin)	Speed Limit for S-Orin only
	1xM.2 B key	For 4G/5G M-Orin	
	Mini PCIe	1 (M-Orin)	For WIFI
Function Key	Power/reset KEY	1	短按启动, 长按重启 Short press to start, long press to restart
	Recovery KEY	1	2个ORIN同时进入Recovery模式 2 ORINs enter Recovery mode at the same time

供电 Power Supply

Power Supply	Spec
Input Type	DC
Input Voltage	Wide input 9-36V DC
Typical consumption	150W

结构 Mechanical

Mechanical	Spec
Dimensions (W×D×H)	370mmx215mmx93mm(I/O ports and mounting holes excluded)
	370mmx240mmx93mm(I/O ports and mounting holes included)
Weight	11 Kg

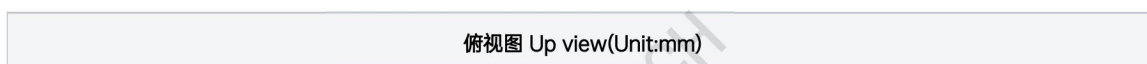
环境 Environmental

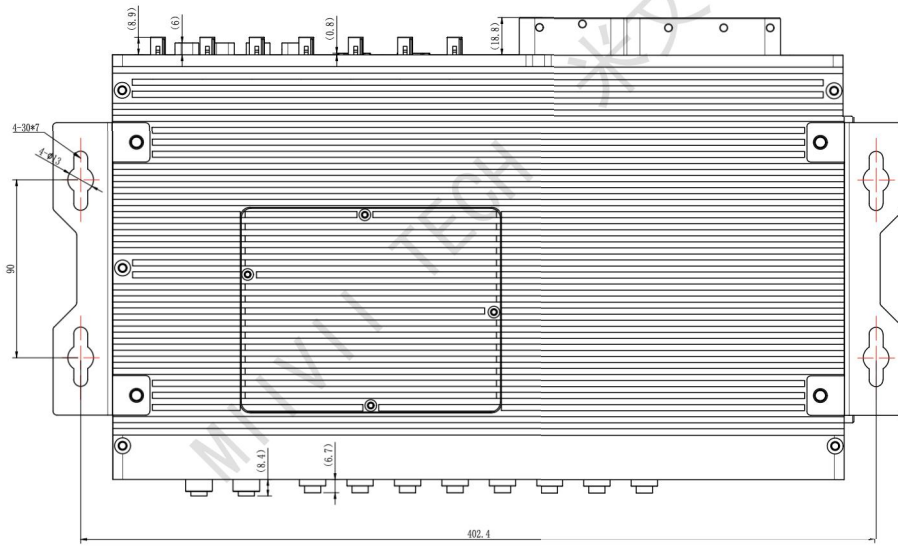
Environmental	Spec
Operating Temperature	-25°C-70°C
Storage Temperature	-40°C-80°C
Storage Humidity	5%-95% non-condensing
Vibration	2Grms,10Hz~500Hz,1h/axis
Protection	IP5X (default)
	IP65 ² (optional)

2. 若对整体产品有高防水要求则需要联系米文动力要求进行产品防水预处理。

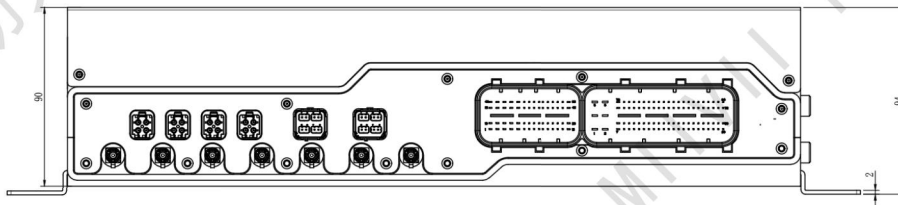
尺寸及安装 Install Dimension

ApexDualOrin主体尺寸及安装孔位尺寸如图:





主视图 Front view(Unit:mm)



上视图 Top view(Unit:mm)

