



产 品 手 册

PRODUCT MANUAL

边 缘 智 能 提 供 商

EDGE INTELLIGENCE PROVIDER

米文产品矩阵

MIIVII Product Matrix

APEX	EVO	LITE
<p>MIIVII APEX ORIN</p>  <p>200TOPS (INT8) 规划中 under planning</p>	<p>MIIVII EVO XAVIER</p>  <p>32TOPS (INT8) 4x 千兆 PoE+ 网口 IP5X 防护等级 支持被授时 4xPoE Gigabit port IP5X protection Passive timing support</p>	<p>MIIVII LITE NX II MIIVII LITE NX NVR</p>  <p>21TOPS (INT8) 0.472TFLOPS (FP16) IP5X 防护等级 2xGbE SATA/M.2 扩展口 IP5X Grade Protection 2xGbE Port SATA/M.2 expansion slot</p>
<p>MIIVII APEX XAVIER II</p>  <p>32TOPS (INT8) 8xGMSL2 时钟同步 异步触发 IP65 防护等级 Clock synchronization Asynchronous trigger IP65 Grade Protection</p>	<p>MIIVII EVO TX2 GMSL2</p>  <p>1.33TFLOPS (FP16) 6xGMSL2 被动散热 1.33TFLOPS (FP16) Passive cooling</p>	<p>MIIVII LITE NX MIIVII LITE TX2 NX MIIVII LITE NANO</p>  <p>21TOPS (INT8) 1.33TFLOPS (FP16) 0.475TFLOPS (FP16) 8xPoE+ Port 低功耗 Low power consumption</p>
<p>MIIVII APEX XAVIER</p>  <p>32TOPS (INT8) 8xGMSL 时钟同步 8xGMSL Camera Clock synchronization</p>	<p>/</p>	<p>MIIVII LITE NX MINI MIIVII LITE TX2 NX MINI MIIVII LITE NANO MINI</p>  <p>21TOPS (INT8) 1.33TFLOPS (FP16) 0.475TFLOPS (FP16) 小体积 工业级防静电 Small size Industrial grade anti-static</p>

MIIVII Apex Xavier II

- 8路 GMSL 二代车规级摄像头接入,向下兼容 GMSL 一代摄像头
- 5路 CAN FD 接口
- IP65 级别高防护
- 多传感器数据融合及微秒级芯片时钟同步
- 车规级丰富稳定接口
- 8-channel GMSL 2.0 automotive-grade camera access, backward compatible with GMSL 1.0 cameras
- 5-channel CAN FD interfaces
- IP65 high level protection
- Data fusion of multiple sensors and single-chip clock synchronization in microsecond level
- Various and stable automotive-grade interfaces



Processor	NVIDIA Jetson AGX Xavier			
Performance	32TOPS			
Video Encode	4x 4K60 4x 4K60	8x 4K30 8x 4K30	16x 1080p60 14x 1080p60	32x 1080p30(H.265) 30x 1080p30(H.264)
Video Decode	2x 8K30 4x 4K60	6x 4K60 8x 4K30	12x 4K30 16x 1080p60	26x 1080p60 52x 1080p30(H.265) 32x 1080p30 2x NVDLA(H.264)
CPU	8-Core Carmel ARM V8.2 64-Bit CPU, 8MB L2 + 4MB L3			
GPU	512-Core Volta GPU with 64 Tensor Cores			
Memory	32GB 256-bit LPDDR4x			
Storage	32GB eMMC 5.1			
DLA Accelerator	2xNVDLA Engine			
Camera	2xGMSL2 4 IN 1 MINI FAKRA TYPE			
I/O	2xPoE+ Gigabit Port 4xDO Sync I/O: 1xSYNC_IN, 1xSYNC_OUT, 1xSYNC_PPS	1xHDMI 2.0 5xCAN FD	2xUSB 3.0 6xUART	4xDI
Extension	2xNano SIM Socket	2xMini PCIe for4G/WIFI	1xM.2 For SSD	
Function key	1xRecovery Button	1xPower Button	1xReset Button	
Power Supply	9V-36V DC			
Mechanical	276mmx66mmx212mm 2.7Kg			
Power Supply	IP65			

MIIVII Apex Xavier

- 8路 GMSL 车规级摄像头接入
- 提供车规级丰富稳定接口
- 多传感器数据融合, 微秒级芯片时钟同步
- 多种硬件同步功能
- 8-channel GMSL automotive-grade camera access
- Offer various and stable automotive-grade interfaces
- Data fusion of multiple sensors and single-chip clock synchronization in microsecond level
- Support different kinds of hardware synchronization functions



Processor	NVIDIA Jetson AGX Xavier			
Performance	32TOPS			
Video Encode	4x 4K60 8x 4K30 16x 1080p60 32x 1080p30(H.265) 4x 4K60 8x 4K30 14x 1080p60 30x 1080p30(H.264)			
Video Decode	2x 8K30 6x 4K60 12x 4K30 26x 1080p60 52x 1080p30(H.265) 4x 4K60 8x 4K30 16x 1080p60 32x 1080p30 2x NVDLA(H.264)			
CPU	8-Core Carmel ARM V8.2 64-Bit CPU, 8MB L2 + 4MB L3			
GPU	512-Core Volta GPU with 64 Tensor Cores			
Memory	32GB 256-bit LPDDR4x			
Storage	32GB eMMC 5.1			
DLA Accelerator	2xNVDLA Engine			
I/O	8xCSI GMSL 1xGigabit Ethernet 1xMicro USB 2.0 Recovery Sync I/O: 1xSYNC_IN, 2xSYNC_OUT, 2xSYNC_PPS	1xSPI 2xCAN 1xI2C	5xGPIO 5xUART 1xI2S	2xUSB 3.1 1xHDMI
Extension	1xNano SIM Socket	1xTF Slot	1xM.2 For 4G	1xM.2 For SSD
Function key	1xRecovery Button	1xPower Button	1xReset Button	
Power Supply	12V-50V DC			
Mechanical	245mmx68mmx172mm (I/O ports and mounting holes included) 213mmx68mmx143mm (I/O ports and mounting holes excluded)			2.2Kg

MIIVII EVO Xavier

- 支持 4 路全独立千兆 PoE+ 网口, 满足工业等场景中网络设备需要供电的需求
- 工业级设计, 直触式被动散热
- 模块化设计, 可拓展性强
- Support total independent 4-channel Gigabit PoE+ port to meet the demand of power supply for network equipment in industrial and other scenarios
- Industrial-grade design, direct-touch passive cooling
- Module designed for strong scalability



Processor	NVIDIA Jetson AGX Xavier			
Performance	32TOPS			
Video Encode	4x 4K60 8x 4K30 16x 1080p60 32x 1080p30(H.265) 4x 4K60 8x 4K30 14x 1080p60 30x 1080p30(H.264)			
Video Decode	2x 8K30 6x 4K60 12x 4K30 26x 1080p60 52x 1080p30(H.265) 4x 4K60 8x 4K30 16x 1080p60 32x 1080p30 2x NVDLA(H.264)			
CPU	8-Core Carmel ARM V8.2 64-Bit CPU, 8MB L2 + 4MB L3			
GPU	512-Core Volta GPU with 64 Tensor Cores			
Memory	32GB 256-bit LPDDR4x			
Storage	32GB eMMC 5.1			
DLA Accelerator	2xNVDLA Engine			
I/O	1xGigabit Ethernet 8xIsolated DIO	4xPoE+ Gigabit Ethernet 1xUSB 2.0 Recovery	2xCAN 5xUART	3xUSB 3.1
Extension	2xNano SIM Socket	2xMini PCIe Slot	1xM.2 Slot	1xTF Slot
Function key	1xRecovery Button		1xPower Button	
Power Supply	14V-48V (Optional) 24V-48V for Poe			
Mechanical	226mmx70mmx144.5mm (I/O ports and mounting holes excluded) 2.3Kg			

MIIVII EVO TX2 GMSL2

- 接口丰富,满足常见接口需求
- 直触式被动散热设计,稳定性强
- 可选 6 路 GMSL2 车规级摄像头,满足车载及工业场景使用需求
- 支持多传感器硬件同步功能
- Various interfaces to meet common interface requirements
- Direct-touch passive cooling design for high stability
- Optional 6-channel GMSL2 automotive-grade camera access to meet the needs of vehicle and industrial scenarios
- Support multi-sensor hardware synchronization function



Processor	NVIDIA Jetson TX2			
Performance	1.33TFLOPS			
Video Encode	1x 4K60 1x 4K60	3x 4K30 3x 4K30	4x 1080p60 7x 1080p60	8x 1080p30 (H.265) 14x 1080p30(H.264)
Video Decode	2x 4K60 4x 4K30 7x 1080p60 14x 1080p30(H.265 & H.264)			
CPU	Dual-Core NVIDIA Denver 2 64-Bit CPU Quad-Core ARM Cortex-A57 MPCore			
GPU	256-Core NVIDIA Pascal GPU architecture with 256 NVIDIA CUDA Cores			
Memory	8GB 128-Bit LPDDR4			
Storage	32GB eMMC 5.1			
I/O	2xGigabit Ethernet 1xMini PCIe Slot DB9 Terminal : 2xCAN	1xHDMI 1xM.2 Slot 3xUART	1xTF Slot 3xUSB 3.0 1xSYNC IO	1xNANO SIM Socket 1xUSB 2.0 Recovery 6xGMSL2
Function key	1xRecovery Button			
Power Supply	12V-30V DC			
Mechanical	178mmx70mmx110mm (I/O ports and mounting holes excluded) 1.2Kg			

MIIVII Lite NX II/NVR

- 高效能的被动散热设计,能够在宽温的工作条件下稳定运行
- 满足抗振防雷等工业标准
- IP5X 的防护等级
- 支持 SATA3.0/M.2 M 接口的 SSD 扩展
- 可替换为主动散热的外壳——MIIVII LITE NX NVR
- Efficient passive cooling design for stable operation with wide temperature range
- Meet the industrial standards such as anti-vibration and lightning protection
- IP5X Grade Protection
- Support SSD expansion of SATA3.0/M.2 M interface
- Can be replaced with the shell of active cooling——MIIVII LITE NX NVR



Processor	NVIDIA Jetson Xavier NX		
Performance	21TOPS		
Video Encode	2x 4K60 4x 4K30 10x 1080p60 22x 1080p30 (H.265) 2x 4K60 4x 4K30 10x 1080p60 20x 1080p30 (H.264)		
Video Decode	2x 8K30 6x 4K60 12x 4K30 22x 1080p60 44x 1080p30 (H.265) 2x 4K60 6x 4K30 10x 1080p60 22x 1080p30 (H.264)		
CPU	6-Core NVIDIA Carmel ARM v8.2 64-Bit CPU 6MB L2 + 4MB L3		
GPU	384-Core NVIDIA Volta GPU with 48 Tensor Cores		
Memory	8GB 128-Bit LPDDR4x		
Storage	16GB eMMC 5.1		
DLA Accelerator	2xNVDLA Engine		
I/O	2xGigabit Port 1xUSB 3.0 TYPE A 1xHDMI	1xUSB 2.0 TYPE A 1xTF Slot 1xSATA3.0	1xM.2 M Key 1xUART
Function key	1xRecovery Button		
Power Supply	12V DC		
Mechanical	178mm×55mm×110mm (I/O ports and mounting holes excluded) 1.2Kg		

MIIVII Lite NX/NANO/TX2 NX MINI

- 体积小重量轻,高集成度,桌面级微型工作站
- 高效主动散热设计
- 低功耗、高性价比
- 支持替换成 Jetson NANO 和 Jetson TX2 NX 模组
- Small size, low weight, high level of integration & desktop micro-workstation
- Efficient active cooling design
- Low power consumption & high cost performance
- Can be replaced with Jetson NANO and Jetson TX2 NX modules



Processor	NVIDIA Jetson Nano		
Performance	472GFLOPS		
Video Encode	1x 4K30 2x1080p60 4x1080p30 4x720p60 9x720p30 (H.265 & H.264)		
Video Decode	1x 4K60 2x 4K30 4x 1080p60 8x 1080p30 9x 720p60 (H.265 & H.264)		
CPU	Quad-Core ARM Cortex-A57 MPCore processor		
GPU	NVIDIA Maxwell architecture with 128 NVIDIA CUDA Cores		
Memory	4GB 64-Bit LPDDR4		
Storage	16GB eMMC 5.1		
I/O	1xGigabit Ethernet 1xI ² C 3xDI 1xUSB 2.0 Micro USB Recovery	1xM.2 Slot 1xHDMI 2xDO	1xUSB 3.0 1xUSB 2.0 2xUART
Function key	1xRecovery Button	1xPower Button	1xReset Button
Power Supply	12V DC		
Mechanical	110mmx62.4mmx65mm 350g		

MIIVII Lite NX/NANO/TX2 NX

- 设备自带 8 路百兆 PoE+ 交换机功能,支持 IEEE802.3at 协议
- 独立千兆网口
- 高效被动式散热设计
- 低功耗、高性价比
- 支持替换成 Jetson NANO 和 Jetson TX2 NX 模组
- Equipped with 8-channel 100M PoE+ switch functions, supporting IEEE802.3at standard
- Independent Gigabit Ethernet port
- Efficient passive cooling design
- Low power consumption & high cost performance
- Can be replaced with Jetson NANO and Jetson TX2 NX modules



Processor	NVIDIA Jetson Nano		
Performance	472GFLOPS		
Video Encode	1x 4K30 2x1080p60 4x1080p30 4x720p60 9x720p30 (H.265 & H.264)		
Video Decode	1x 4K60 2x 4K30 4x 1080p60 8x 1080p30 9x 720p60 (H.265 & H.264)		
CPU	Quad-Core ARM Cortex-A57 MPCore processor		
GPU	NVIDIA Maxwell architecture with 128 NVIDIA CUDA Cores		
Memory	4GB 64-Bit LPDDR4		
Storage	16GB eMMC 5.1		
I/O	8xPoE+ 100M Ethernet 1xNano SIM Socket 1xNon-standard Mini PCIe	1xGigabit Ethernet 1xHDMI 1xM.2 Slot	1xUSB 3.0 2xUART 1xUSB 2.0 Recovery
Function key	1xRecovery Button		
Power Supply	52V DC		
Mechanical	178mmx55mmx110mm (I/O ports and mounting holes excluded) 1.2Kg		

硬件定制

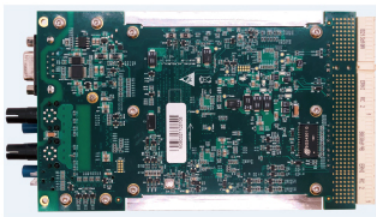
Hardware Customization

硬件定制项目

Hardware Customization Projects

为满足轨道交通的特殊场景需求,通过 CPCI 板卡设计,带有钢性结构,不会因为 Xavier 模组过重而使 PCB 长时间受重产生形变,同时设计结构紧凑,在仅有的面积内满足所有客户要求。

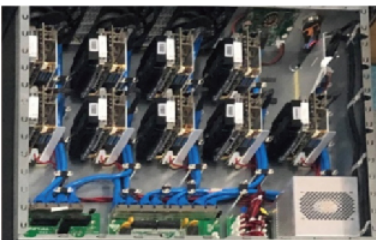
To meet the needs of special scenarios in rail traffic, the CPCI board cards are designed with a steel structure that will not deform the PCB due to the excessive weight of the Xavier module, in the meantime, the structure is compact and can meet all customer requirements within small area.



- 便于部署的 CPCI 板卡形态
- -40~85°C工作环境
- 航插接口器件
- CPCI board card form that is easy to deploy
- -40-85°C operating environment
- M12 connectors

视频分析场景下,根据接入的摄像头数量不同,对算力的要求也不尽相同,米文采用 Jetson 模组集群的形态,实现灵活化的应用部署。

In video analysis scenarios, the computing power requirements vary depending on the number of cameras connected, while MIIVII adopts Jetson module clusters to enable flexible application and deployment.



- 超过 10 个计算单元集群应用
- 使用 TX2 模组: 可接 50-70 路视频
- 使用 NX 模组: 可接 100 路以上视频
- Over 10 computing units for cluster applications
- TX2: 50-70 channels of videos process
- NX: more than 100 channels of videos process



为保证在温度极端、灰尘较多的矿区环境下的设备稳定运行，设计 IP65 防护等级的设备，并根据客户需求高度定制，将 AGX Xavier 模组接口扩展到极致。

To guarantee the stable operation of devices in dusty environments of extreme temperature, MIIII's devices are designed with IP65 grade protection and provide advanced customization, with the number of AGX Xavier module interfaces increased to the maximum according to customer requirements.



- 极致接口数量
- IP65 高规格防护
- 满足矿场恶劣环境要求
- Maximum number of interfaces
- IP65 high level protection
- Adapting to the harsh environment of mining sites

全部特殊接口设计，满足最小化紧凑设计，全部采用工业级元器件，按客户要求高度定制板载 IMU。

All interfaces are specially designed to realize minimal compact design. Only industrial grade components are used and the on-board IMU is highly customized according to customer requirements.



- 极致裁剪
- 适用无人机场景小而轻稳定接口；
- 按实际接口需求定制，降低成本。
- Minimum size cutting
- Suitable for small, light and stable interfaces in the UAV scenarios
- Customized to the actual interface requirements, reducing costs

软件优势

Software Advantages

精准时钟同步

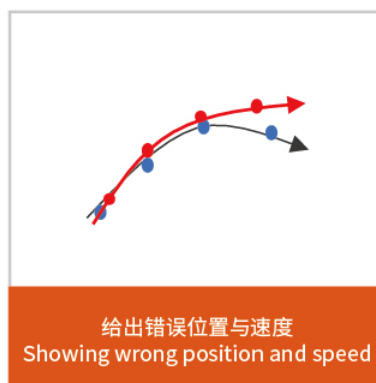
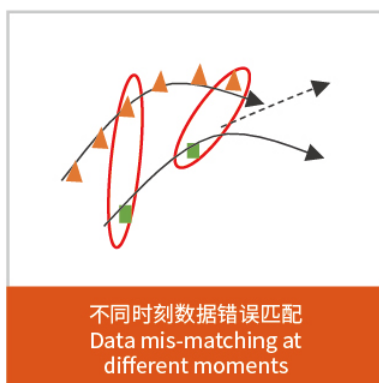
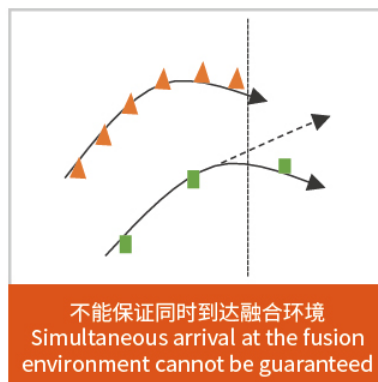
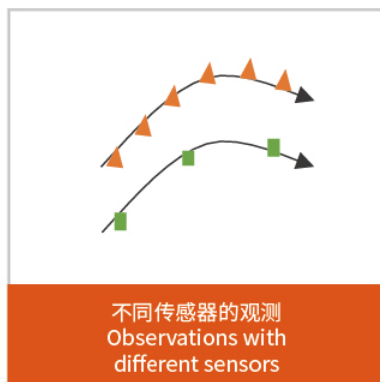
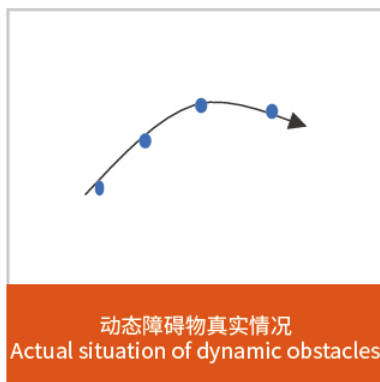
Accurate Clock Synchronization



必要性 Necessity

不同类型传感器采样周期不同, 数据处理复杂度不同, 导致融合数据存在时间差。若将不同时刻的数据错误匹配在一起, 终将给出错误的障碍物位置和速度估计, 进而导致严重后果。

Different types of sensors have different sampling periods and different complexity of data processing, this situation results in time difference of the data fusion. If the data from different moments are incorrectly matched together, then the position and speed of obstacles will eventually be estimated incorrectly, leading to serious consequences.





米文时钟同步 MIIVII Clock Synchronization

米文自主研发的时钟同步功能, 通过内置时钟同步芯片实现多传感器数据融合, 支持 PPS 同步、Sync in 同步、Sync out 同步、异步触发四种同步方式。

MIIVII's independently developed clock synchronization function enables multi-sensor data fusion by means of a built-in clock synchronization chip, supporting four ways of synchronization: PPS synchronization, Sync in synchronization, Sync out synchronization and asynchronous trigger.



效果 Effect

同步误差可达 0.1-1 μ s。

Synchronization error of 0.1-1 μ s is achieved.



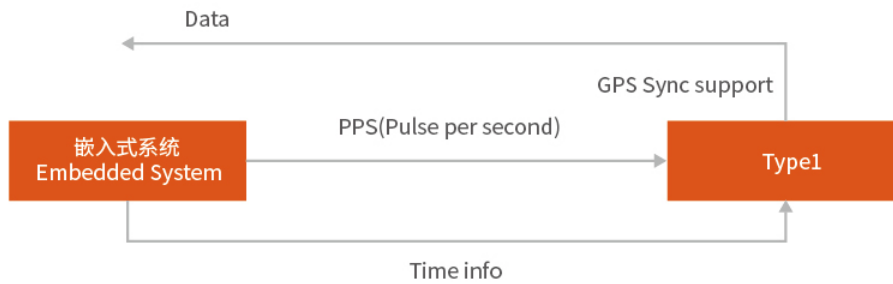
优势 Advantages

- 多种同步方式: PPS 同步、Sync in 同步、Sync out 同步、异步触发
- 多传感器支持: 摄像头, 激光雷达, IMU 等
- 设备内置同步芯片, 集成度更高, 延迟更低, 微秒级误差
- 支持多种设备授时方式: PTP 授时、GPS 授时
- 支持多数据接口: RS422/RS485/RS232/TTL
- Support multiple ways of synchronization: PPS synchronization, Sync in synchronization, Sync out synchronization, asynchronous trigger
- Support multiple sensors: camera, LIDAR, IMU, etc.
- Built-in synchronization chips with high level of integration, low latency and microsecond-level error
- Support a variety of equipment timing methods: PTP timing & GPS timing
- Support multiple data interfaces: RS422/RS485/RS232/TTL

PPS 同步 PPS synchronization

米文设备可以输出 PPS 信号(每秒产生一个脉冲,脉宽为 50ms),以及该信号脉冲上升沿产生时间的 NMEA GPRMC 消息。支持 PPS 同步模式的传感器会通过收到的 PPS 信号以及 GPRMC 消息,对自身时钟系统进行校时,使之与米文设备的系统时钟保持一致。传感器采样时采样的时间作为时间戳(timestamp),与数据一起被发送至米文设备。至此,系统获取了传感器采样的系统时间,完成同步。

MIIVII device can output PPS signal (one pulse per second, 50 ms pulse wide) and NMEA GPRMC message about the generation time of the rising edge of the signal pulse The sensor supporting PPS synchronization mode will calibrate its own clock system through the received PPS signal and GPRMC message to make it consistent with the system clock of the MIIVII device When the sensor samples, the sampling time is used as a timestamp and sent to the MIIVII device together with the data So far, the system obtains the system time of sensor sampling, completes the synchronization.



Sync out 同步 Sync out synchronization

米文设备可以通过 Sync out 引脚输出 1-30Hz 频率(支持自行调试修改),脉宽 5ms 的脉冲信号,用于触发外部传感器启动采样。同时,会记录该脉冲上升沿的产生时间。传感器完成采样后,还会将记录的时间与本次传感器传回的数据做关联,作为该数据的时间戳。至此,系统获取了传感器采样的系统时间,完成同步。

MIIVII device can output a pulse signal with a frequency of 1 30 Hz (self-adjustment supported) and the pulse width of 5 ms through the sync out pin, which is used to trigger the external sensor to start sampling At the same tim, the device will record the generation time of the rising edge of the pulse After the sensor completes sampling, it will associate the recorded time with the data returned by the sensor as the time stamp of thedata So far, the system obtains the system time of sensor sampling and completes the synchronization.



异步触发 Asynchronous trigger

米文设备作为同步源，支持异步触发方式触发机械式激光雷达和摄像头。激光雷达使用 PPS 同步，根据 PPS 脉冲上沿产生的 NMEA GPRMC 消息对自身的时钟进行校时，使之与米文设备系统时钟一致。当激光雷达转动到特定的角度，相应角度的摄像头被米文设备输出的信号触发曝光，其他角度的摄像头不触发，以达到摄像头之间的异步触发。之后采样时间作为时间戳 (timestamp) 与该时刻的激光点云数据、图像数据一起发送至米文设备，完成同步。

As the synchronization source, MIIVII device supports the way of asynchronous trigger to touch off mechanical LIDAR and cameras. The LIDAR adopts PPS synchronization and times itself according to the NMEA GPRMC messages generated by the rising edge of the PPS pulse to align with the system clock of the MIIVII device. When the LIDAR rotates to a specific angle, the camera at the corresponding angle will be triggered to expose by the signal sent from the MIIVII device, while the cameras at other angles will not be triggered, hence the asynchronous trigger between cameras can be achieved. The sampling time then is sent to the MIIVII device as a timestamp, together with the laser point cloud data and image data at that moment, in order to complete the synchronization.



Sync in 同步 Sync in synchronization

支持 Sync in 同步模式的传感器，在启动采样的时刻会产生并发出一个脉冲信号。米文设备通过 Sync in 引脚接收该脉冲信号，并记录该脉冲上升沿的产生时间。传感器完成采样后，米文设备会将记录的时间与本次传感器传回的数据做关联，作为该数据的时间戳。至此，系统获取了传感器采样的系统时间，完成同步。

The sensor which supports sync in mode will generate and send out a pulse signal when it starts sampling. MIIVII device receives the pulse signal through the sync in pin and records the generation time of the rising edge of the pulse. After the sensor completes the sampling, MIIVII device will associate the recorded time with the data returned by the sensor as the time stamp of the data. So far, the system obtains the system time of sensor sampling and completes the synchronization.



高效远程运维

Efficient Remote Operation and Maintenance

远程监管

Remote Monitoring and Management



必要性 Necessity

设备大量部署后, 如何实时监控设备状态、实现异常状态及时报警将会是一个重要的问题。传统人工查看方式时效低、成本高、浪费人力物力。

After deploying a large number of devices, how to monitor the real-time status of devices and how to warn abnormality in time will be an important issue. Traditional manually checking is not only inefficient, but also a waste of manpower and resources.



米文远程监管系统 MIIVII remote monitoring system

米文为提升基于 Jetson 设备的易用性, 减少构建边缘计算系统的工作量, 便于对设备的管理和维护, 发布云边端协同系统。该系统支持对设备状态的保存记录和实时查看, 可实现异常状态及时报警功能。

MIIVII has released the "cloud-edge-terminal" collaboration system to improve the usability of Jetson-based devices, reduce the workload of building edge computing systems, and facilitate the management and maintenance of devices. This system supports saving records and real-time viewing of the device status, and enables timely alarming function for abnormal status.



优势 Advantages

- 可通过 SaaS 或私有云部署, 灵活性更高
- 远程查看设备状态和异常设备, 及时预警
- 便于批量化部署, 节省维护成本
- Apply SaaS or the private cloud to achieve more flexible deployment
- Remotely checking the equipment status & abnormality warning
- Easy for mass deployment & saving maintenance costs



效果 Effect

无需专人定期对设备进行状态检测, 节省运维成本。

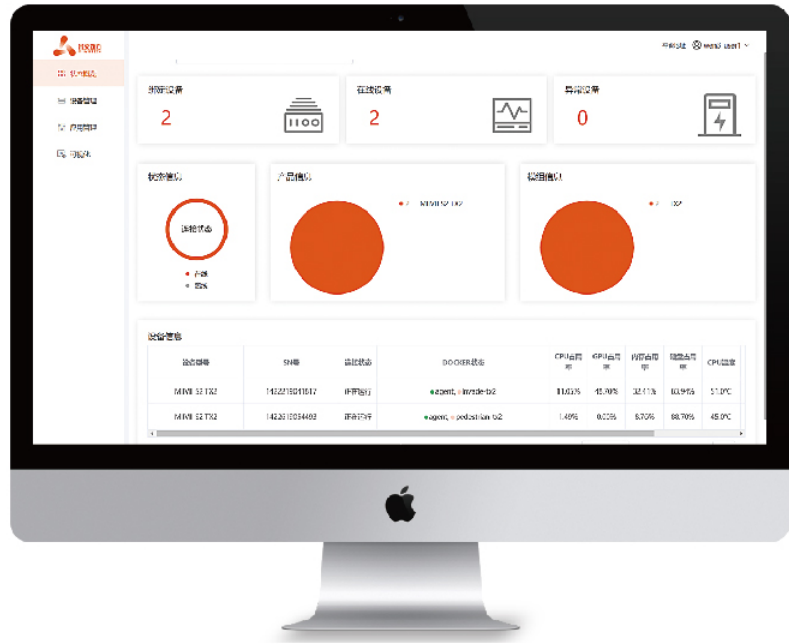
No need to regularly test the equipment by dedicated personnel, saving operation and maintenance costs.



使用说明 Instructions for use

进入 edge.miivii.com 网站, 微信注册登录, 通过米文设备唯一的 SN 号进行绑定, 绑定成功后可以查看设备状态, 包括 CPU、GPU、内存、存储等的使用情况。

Visit edge.miivii.com, register your account through WeChat and log in. Then bind your MIIVII device with its unique serial number. After a successful binding, you can view the status of your device, including CPU, GPU, memory, storage, etc.



传统方式 Traditional method

近距离接触设备
Operating in the work field

定期(周/月)对设备进行维护
Regular (weekly/monthly) maintenance of the equipment

设备无法做到异常预警, 只有定期维护时可通过 log 查看历史工作状态
Historical operating status of the equipment can only be checked via log during regular maintenance, without any abnormality warning.



访问方式
Access method



访问频率
Access frequency



异常状态查询
Abnornity enquiry

米文云边协同 MIIVII cloud-edge collaboration system

远程访问
Remote access

可随时查看设备
Viewing the equipment
at any time

随时访问设备, 提前发现设备工作问题, 及时做出相应对策, 减少生产事故发生。

Accessing the equipment at any time to identify the problems of equipment operation in advance and make corresponding countermeasures in time to reduce production accidents.

远程系统升级 (OTA) Over-the-air Update (OTA)



必要性 Necessity

系统版本不断升级迭代,就需要不断对设备镜像进行升级,传统的升级方式,需要每次对设备进行刷机,且无法对已经部署的设备及时操作。

As the system version is constantly updated and iterated, it is necessary to upgrade the image devices correspondingly. However, with the traditional upgrading method, devices need brushing each time and it is impossible to operate the deployed devices in time.



米文 OTA 服务 MIIVII OTA service

系统在线升级,是米文针对所有 Jetpack4.5 及以上版本设备提供的服务,可以不通过连接上位机刷机来实现系统固件的升级。并通过可视化的界面形式展现,帮助非技术人员进行系统的升级回退操作。

OTA update, a service provided by MIIVII for all Jetpack 4.5 and above devices, allows for upgrading the firmware without burning image and installing the computer. It is presented in the form of a visible user interface to help non-technical staff to update or roll back the system.



优势 Advantages

- 优化 OTA 升级服务,做到免砖升级,打消客户升级顾虑
- 自建服务器,可快速下载
- 可视化界面,便于用户端操作
- Optimize OTA upgrade and avoid “bricking” upgrade to reassure customers
- Self-built server for fast downloads
- Visible user interface for convenient operation

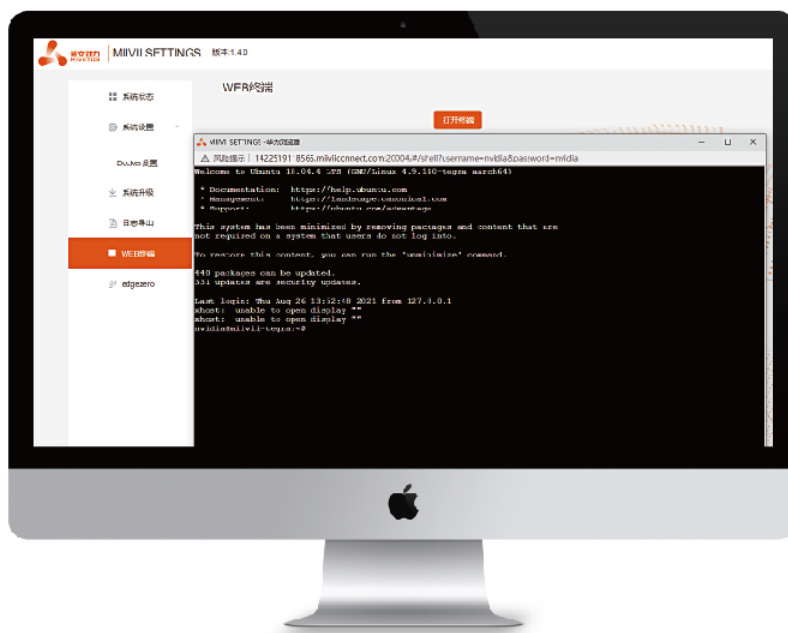


远程穿透 - 访问设备终端

Remote Penetration - Access to the Device Terminal

通过米文提供的 Edge Service 服务,运维人员可以通过 Web 端远程登录设备,执行必要的管理操作。

By using the Edge Service provided by MIIVII, O&M personnel can remotely log into the device through the Web terminal and perform necessary management operations.



远程导出设备日志

Remotely Export Device Logs

通过米文提供的 Edge Service 服务,运维人员可以远程导出设备的日志文件。

By using the Edge Service provided by MIIVII, O&M personnel can remotely export device log files.



便捷量产工具

Convenient Mass Production Tools

图形化批量烧写软件

Graphical Massive Image Burning Software



必要性 Necessity

用户批量部署，需要对所有的大脑盒子进行镜像的烧录，当前普遍是通过英伟达 SDK Manager+ 接口驱动补丁包的形式，用上位机一对一操作的方法来实现，该方式不便于大批量设备的部署，且无法克隆出已经开发完成的镜像，大大降低了生产部署的效率。

To complete the batch deployment by users, all devices need image burning, which is commonly achieved through NVIDIA SDK Manager with interface driver package, via one-by-one operation with the upper computer. This method is not convenient for the deployment of a large number of devices, and cannot clone the developed images, which dramatically lowers the efficiency of production deployment.



米文批量烧写工具

MIIVII massive image burning software

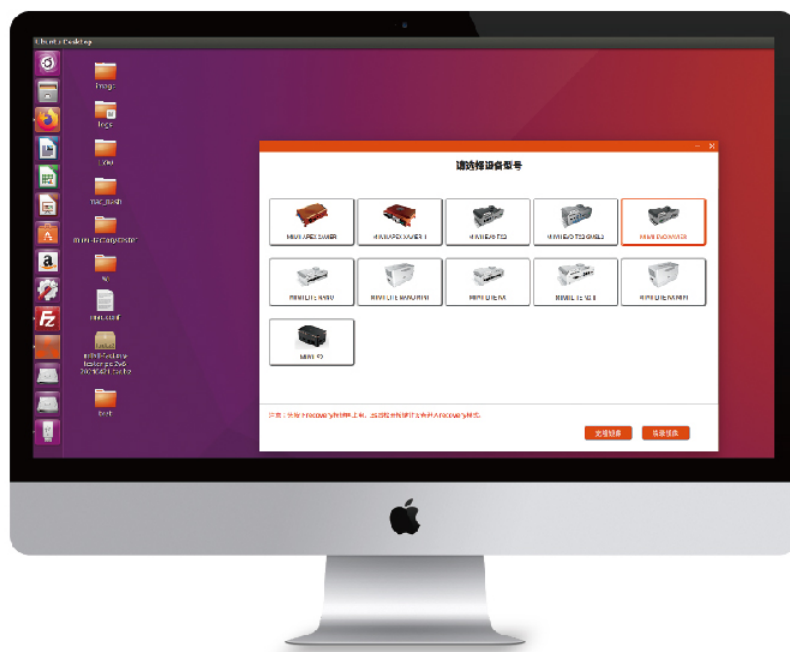
通过可视化的烧写工具，可将部署完成的镜像克隆出，并支持同时对多台设备进行烧录。米文 Jetpack4.5 版本以上镜像更是支持在线刷机功能，高达 5M/S 的下载速度可以在 15 分钟时间内完成刷机操作。

Visible burning tools allow for cloning the deployed images and support simultaneous burning of multiple devices. MIIVII Jetpack 4.5 and above devices even support online burning image function, with the downloading speed up to 5M/S, which can be done within 15 minutes.



优势 Advantages

- 支持镜像克隆
- 支持多设备批量烧录，节省部署时间
- 图形化界面操作简单，降低烧录操作门槛
- Support image cloning
- Support batch burning of multiple devices, saving deployment time
- Graphical interface for burning operation, easy to use



米文设备镜像烧录 MIIVII image burning		竞品镜像烧录 Other image burning
米文镜像烧录软件 MIIVII image burning software	 镜像烧录方式 Image burning method	英伟达 SDK Manager+ 接口驱动补丁包 NVIDIA SDK Manager+ interface driver package
图形化操作 Graphical operation	 软件操作方式 Software operation	图形化 + 操作命令 Graphical+ command
支持 Yes	 是否支持镜像克隆 Support image cloning or not	不支持 No
可批量化镜像烧录 Batch burning image	 设备批量化部署 Batch deployment of equipment	单台依次操作 Operating in sequence by a single server
国内 / 米文自有服务器 Domestic/ MIIVII owned server	 镜像服务器 Image server	百度云 / 英伟达美国服务器 Baidu Cloud / NVIDIA US Server
3 ~ 5MB/s	 镜像下载速度 Downloading speed of images	300~500KB/s

可视化部署工具

Visual Deployment Tool

图形化配置工具

Graphical Configuration Tool



必要性 Necessity

设备的参数配置需要通过命令行的形式实现，这种形式不会影响技术人员的开发，但是由于实际部署人员的水平参差不齐，无法保证所有人可以进行设备配置，加大了部署的成本和难度。

The parameter configuration of devices needs to be achieved via command-line applications. This method does not interfere with the development of technicians, but not everyone can configure devices due to their varying skills, thus increasing the cost and difficulty of deployment.



米文图形化配置工具

MIIVII graphical configuration tool

为便于用户的批量化部署，米文采用图形化可视界面的形式，将复杂的操作简单化，降低设备的使用门槛。

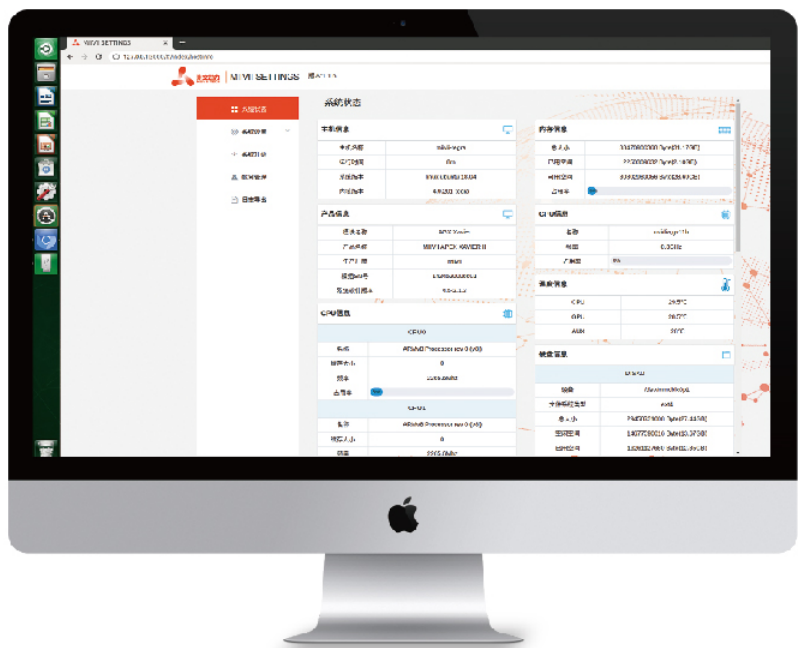
To facilitate the batch deployment of users, MIIVII adopts the graphical visible interface to simplify complex operations, making the devices easy to use.



优势

Advantages

- 图形化操作
- 降低设备在部署现场的配置难度
- Graphical operation
- Reduce the difficulty of configuring equipment at the deployment site





微信公众号



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