



NVIDIA Jetson

Edge AI Computing

Platform

actina

Application-Oriented Jetson Carriers & Platforms

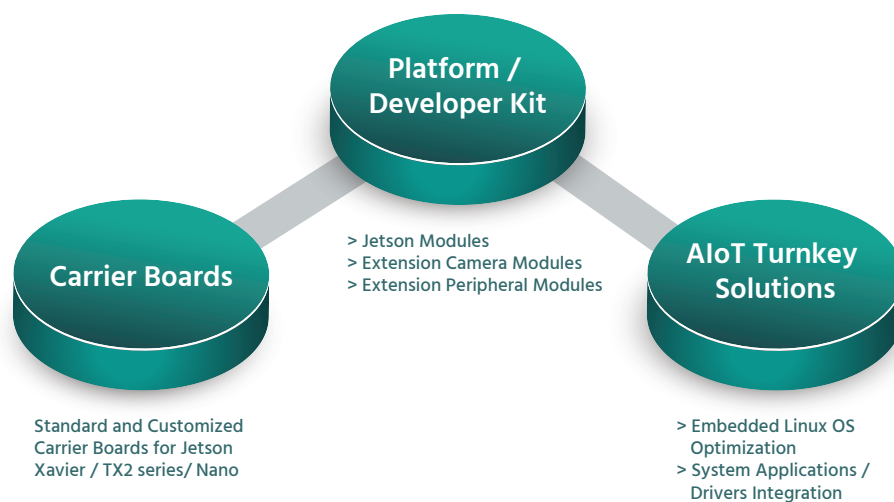
Giving You the Power to Make the World Smarter

We are here to help you discover the progressive GPU technology and the future of edge embedded computing. Building intelligent machines to sharpen the competitive edge, specifically exponential adoption of GPU-accelerated computing, has taken off.

Leveraging NVIDIA the latest and powerful Jetson AGX Xavier, Xavier NX, TX2 series, and Nano platform, Aetina brings its incredible computing performance, superior deep learning, GPU computing capabilities and high energy efficiency into embedded systems based on evaluation Carrier Boards and well-featured Developer Kits.

With them, you could accelerate your Artificial Intelligence (AI), visual-computing and compute-intensive embedded projects, such as Drones, UAVs, Autonomous Robotics, Mobile Medical Imaging and Intelligent Video Analytics (IVA) in a time-to-market, easy and low-risk way.

AETINA MAJOR OFFERING



Building an Edge AI Platform Connecting the Future World

Aetina 4G/5G Supported Jetson Platform – AN810-XNX

Flexible I/O Expansion Enabling a Diverse Range of AI Applications in AIoT

AN810-XNX, combining the NVIDIA Jetson Xavier NX and Aetina brand new AN810 carrier board in a Nano-ITX form factor of 120x120x47.3 mm (with fan). It supports a full M.2 slot with M-key, E-key, and B-key and the interface with PCIe/SATA/USB 3.2 Gen2/USB 2.0. AN810-XNX features prospective communication capabilities integrated with the 4G/5G module beforehand and an onboard SIM slot for high-speed wireless connection and data transferring to build seamless global connectivity for edge devices. With the widespread use of vision AI applications. AN810-XNX supports the single 120-pin connector for the MIPI CSI-2 interface. It can handle intensive AI workloads ultra-high-resolution cameras to more accurate image analysis.



AI Surveillance

Intelligent video and Images analytics in real-time detection, recognition and tracking



AIoT

Collect data from multi sensors and stream analytics online between "things" and "cloud"



Edge Computing

Run faster and high accuracy AI inferences at the edge devices



Cloud



Internet



AI Computing Platform on Edge (Jetson)



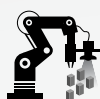
Object Detection



Object Tracking



Object Classification



Visual Robot



Smart Surveillance



Autonomous Vehicle

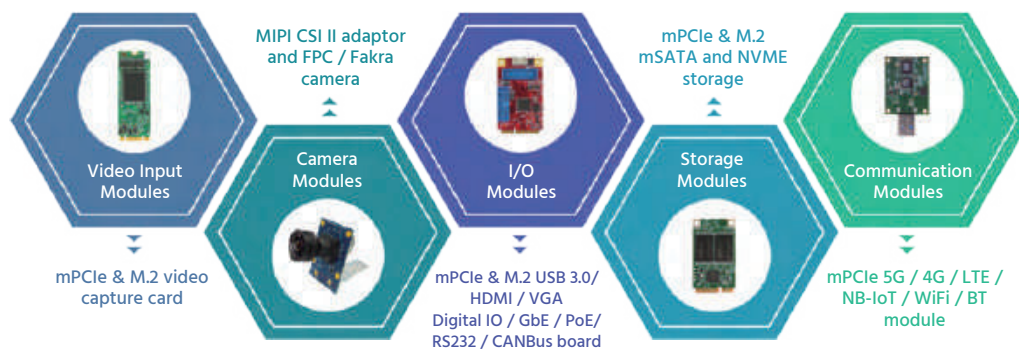


Drone

Software / Hardware Integration Value-added Services

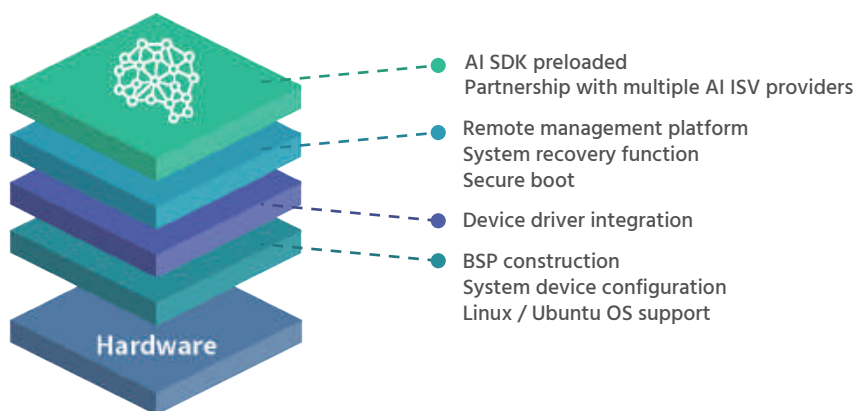
Extension Peripheral Integration Service

Aetina assists clients to build with various extension peripheral module and video-image-detection (VID) modules to enhance the platform's applicability. With AVL supporting, clients could select the appropriate hardware peripherals quickly and effortlessly. Aetina helps import the required software and drivers into the computing module to allow plug-and-play and boost time-to-market.



System Configuration & Integration Service

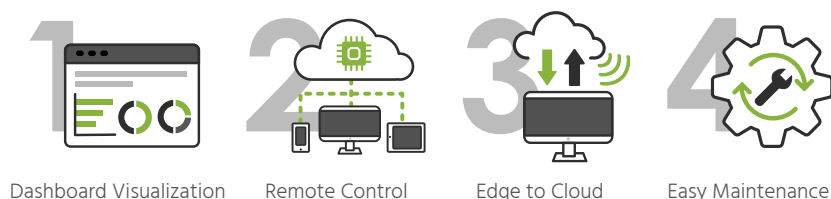
Aetina provides operating system customization service, that assists developers built their embedded OS based on Linux, featuring one-key, easy-to-use system recovery mechanism and tailored security control. This optimizes their application's best reliability, security, and individuality.



Edge Device Remote Management

Leveraging Aetina's EdgeEye device remote management platform, allowing system integrators and device managers effectively and effortlessly to monitor and manage the distributed edge devices at any time and any location:

- Edge devices remote monitoring and control
- Device status prediction and notification
- Web-design and user-friendly dashboard



Ecosystem: With a Strong Team to Urge Up AIoT

Stepping into the AIoT industry, you may need partners to overcome the difficulty from various problems and different professional situations instead of getting it alone. Aetina recognizes your unique requirement, and our Semi-Custom and Micro-Custom level service could help you reach your demand quickly and flexibly!

Accelerate Jetson-based AI Projects through Aetina's Customization & Design Service



Ecosystem : Enlarge the abilities of your AI platform to make a powerful solution



Product Selection



Model Number	AN110-NAO	AN110-XNX	AN510-TX2	AX720-X32	AN810-XNX
NVIDIA Jetson Module Pre-integrated	NVIDIA® Jetson Nano™	NVIDIA® Jetson Xavier™ NX	NVIDIA® Jetson™ TX2	NVIDIA® Jetson AGX Xavier™	NVIDIA® Jetson Xavier™ NX
AI Performance	0.5 TFLOPS (FP16)	14 TOPS (INT8) at 10W 21 TOPS (INT8) at 15W	1.3 TFLOPS (FP16)	11 TFLOPS (FP16) 32 TOPS (INT8)	14 TOPS (INT8) 10W 21 TOPS (INT8) 15W
CPU	Quad-core ARM Cortex A57 MPCore processor	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6NB L2 +4MB L3	Dual-core Denver 2 64-bit CPU quad-core ARM A57 complex	8-core ARM v8.2 64-bit CPU 8MB L2 + 4MB L3	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6MB L2 + 4MB L3
GPU	NVIDIA Maxwell™ 128 CUDA cores	NVIDIA Volta™ 384 CUDA cores and 48 Tensor cores	NVIDIA Pascal™ 256 CUDA cores	NVIDIA Volta™ 512 CUDA cores and 64 Tensor cores	NVIDIA Volta™ 384 CUDA cores and 48 Tensor cores
Memory	4GB LPDDR4 64-bit	8GB LPDDR4x 128-bit	8GB LPDDR4 128-bit	32GB LPDDR4x 256-bit	8GB LPDDR4x 128-bit
LAN	1x RJ-45 (Internal)	1x RJ-45 (Internal)	1x RJ-45 (Internal)	1x RJ-45 (Internal) 2x RJ-45 (by extension daughter board)	1x RJ-45 (Internal)
Video Outputs	1x HDMI Type A 1x eDP	1x HDMI Type A 1x eDP	1x HDMI Type A	2x HDMI Type A	1x HDMI Type A
Storage	16GB eMMC 5.1 Flash 1x Micro SD card slot	16GB eMMC 5.1 Flash 1x Micro SD card slot	32GB eMMC 5.1 Flash 1x Micro SD card slot	32GB eMMC 5.1 Flash 1x Micro SD card slot	16GB eMMC 5.1 Flash 1x Micro SD card slot
Expansion	1x M.2 E Key 2230 1x 2-Lanes MIPI CSI-2 FPC 15 pins 1x 4-Lanes MIPI CSI-2 FPC 36 pins	1x M.2 E Key 2230 1x 2-Lanes MIPI CSI-2 FPC 15 pins 1x 4-Lanes MIPI CSI-2 FPC 36 pins	N/A	1x M.2 M Key 2280 1x M.2 E Key 2230 1x Extension slot 1x MIPI CSI-2 Connector 120 pins	1x M.2 M Key 2280 1x M.2 E Key 2230 1x M.2 B Key 3050 1x MIPI CSI-2 Connector 120 pins 1x SIM Slot
USB	2x USB3.2 Type A 1x USB2.0 Micro AB	2x USB3.2 Type A 1x USB2.0 Micro AB	2x USB3.0 Type A 1x USB2.0 Micro AB	2x USB3.2 Gen1 Type A 1x USB3.2 Gen2 Typc C 1x USB2.0 AB OTG	2x USB3.2 Gen1 Type A 1x USB2.0 Micro AB (OTG Only)
MISC. External Interfaces	1x Front Panel 5x GPIO 1x RS232 2x UART (1x Debug UART) 1x I2C 1x SPI 1x 4-pin FAN connector	1x Front Panel 5x GPIO 1x RS232 2x UART (1x Debug UART) 1x I2C 1x SPI 1x 4-pin FAN connector	1x Front Panel 4x GPIO 2x CAN BUS 1x RS232 1x UART 1x 4-pin FAN connector	1x Front Panel 5x GPIO 2x CAN BUS 1x RS232 3x UART 1x I2C 1x SPI 1x 4-pin FAN connector	1x Front Panel 1x Power button/Reset button 5x GPIO 1x CAN BUS 2x UART 3x I2C 1x SPI
Power Requirement	12V / 5A DC	12V / 5A DC	12V / 5A DC	9.0V ~ 19.6V / 5A DC	Wide Input 12V ~ 19V DC
Dimensions	87.4 mm x 67.4 mm	87.4 mm x 67.4 mm	87 mm x 50 mm	131 mm x 120 mm	120 mm x 120 mm
Operation Temperature	-20 °C to +55°C	-20 °C to +55°C	-20°C to +70°C	-25°C to +80°C	-20°C to +70°C

PRODUCT ADVANTAGES

Time-to-Market Deep Learning Projects

- Customized and ready-to-ship on-board edge AI computing solutions
- Versatile driver-ready extension I/O modules
- Linux, Android OS customization and full BSP support
- Support latest APIs and SDK (libraries for deep learning, computer vision and GPU acceleration)
- Application-oriented software consultant, customization and system integration
- Ready for multiple-algorithm processing.

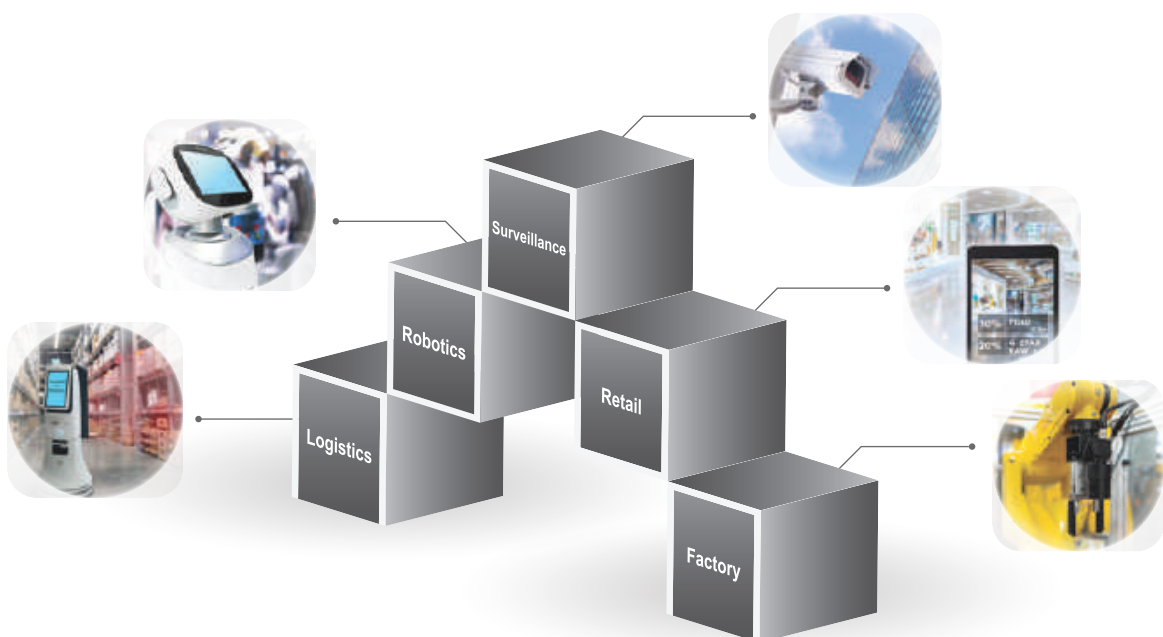
Unmatched Performance to AI-Computing

- Compatible with NVIDIA Jetson AGX Xavier / Xavier NX / TX2 / TX2 NX and Nano modules
- Features up to 512 CUDA cores
- Over 2.5 TFLOPS and more than 30 TOPS of AI operation performance
- 4Kx2K 60 Hz video encode and decode capabilities
- Support NVIDIA CUDA 9.0

Enhanced Industrial-grade GPGPU Design

- Alliance with embedded standardization: COM Express, Nano-ITX and Mini-ITX
- Up to 5-years longevity product life cycle
- Extended operating temperature range $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ and conformal coating support
- Modularized thermal solution support

MARKET APPLICATIONS



AI & Deep Learning

Application Example

Edge AI Computing Solutions

Enabling 3D-modeling and Intelligent Analysis in Minutes with Deep Learning

Challenge

In 3D modeling, it is the process of developing a three-dimensions mathematical representation of the surface of any object.

The process contains 3D rendering or computer simulation are computationally intensive. With CUDA-enabled GPU, applications can achieve an order of magnitude less-time. Bring the system with 3D cameras and sensors into a highly mobility devices however are particularly low-energy consumption required.

Solution

Aetina Jetson Edge AI Computing Solutions uses the power of cutting-edge Jetson Xavier / TX2i / TX2 / TX1 to drive more than a TFLOP/s of performance to calculating, analyzing and acting on tremendous amounts of data from the cameras and sensors with operating at less than 10 Watt. These GPU-accelerated Jetson solutions also have outstanding parallel processing in deep learning and AI computing. Let you maximize efficiency, quality and productivity in object detection, image recognition, motion tracking and digital reconstruction.

Real-word Applications

- **Anti-collision Devices:** vehicle system, drone , UGV, warehouse robot, service robot
- **Surveillance:** facial recognition, intelligent video analytics (IVA), retail store analytics
- **Production Automation:** pick-and-place robotic arm, automated optical inspection

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