

Product Information

Product Introduction



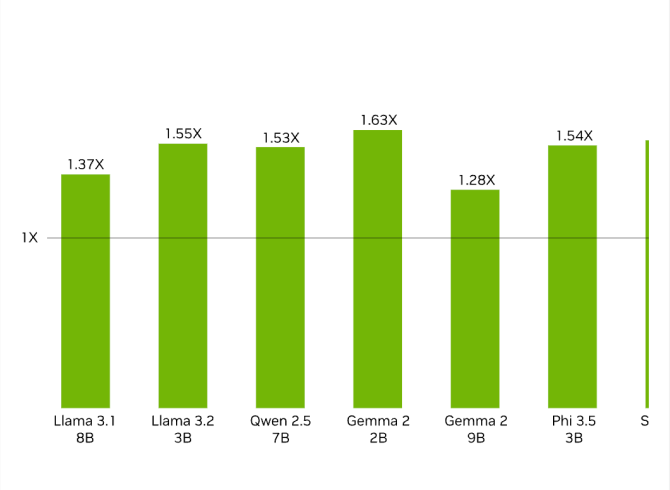
CamThink NeoEdge NG4500 series has powerful edge computing capabilities and integrates NVIDIA® Jetson Orin™ NX or Nano core modules, which can fully unleash the computing performance of Jetson Orin™. It achieves **up to 1.7 times performance boost** compared with the previous generation product that does not support NVIDIA® Super Developer Kit. In addition to the support of general visual AI application, it can also efficiently run various mainstream generative AI models, including **Text Large Language Models(LLMs), Vision Large Language Models(VLMs), and Multi-modal Large Language Models(MLLMs)**. Additionally, NG4500 supports a variety of physical interfaces and scalable communication modules (Wi-Fi/4G/5G), and can flexibly adapt to inter-device communication and edge-to-cloud collaborative communication in various edge computing application scenarios such as Robotic systems, Smart Vehicle Terminals, Smart Manufacturing Computing Hub, and Edge AI Computing Gateway. The **industrial-grade design** of NG4500 ensures that the equipment

operates robustly ranging from -25°C to 60°C with outstanding reliability, and can meet the needs of diverse scenarios.

NVIDIA® Super Performance Boost

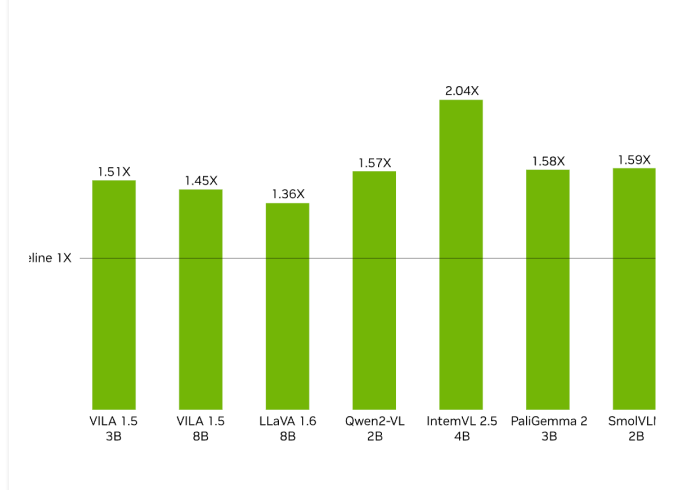
NeoEdge NG4500 series supports NVIDIA® Super Mode, it achieves significant performance improvement in LLMs, VLMs, and Visual Transformer(ViTs), access more specifications [Jetson Orin Nano Super Developer Kit | NVIDIA](#).

Large Language Models



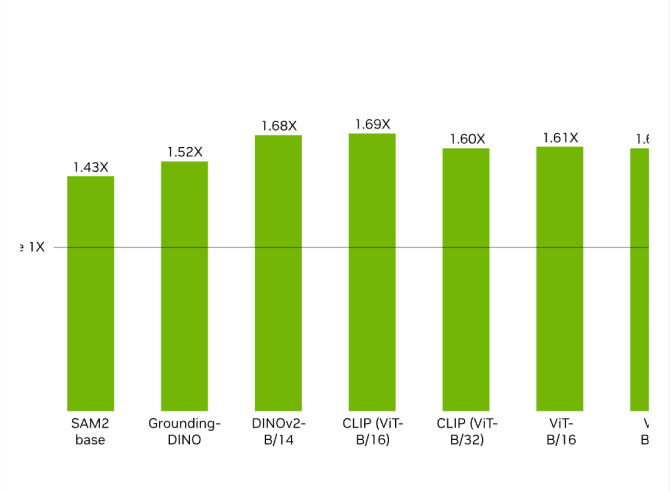
LLM performance improvement on NVIDIA Super Developer Kit

Vision Language Models



VLM performance improvement on NVIDIA Super Developer Kit

Vision Transformers

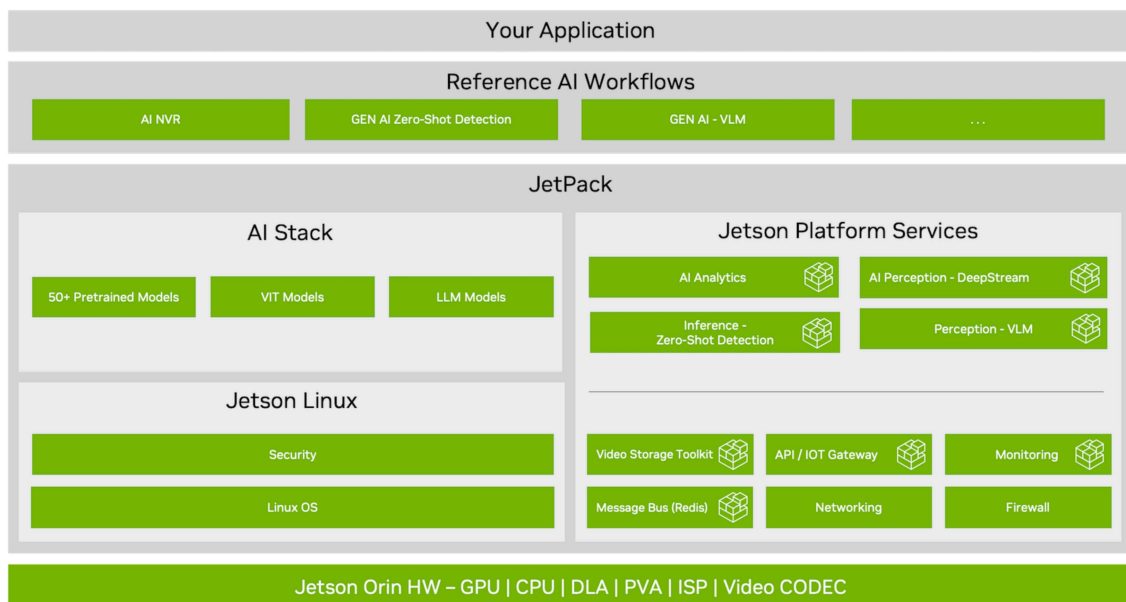


ViT performance improvement on NVIDIA Super Developer Kit

High-performance AI Platform

CamThink NG4500 series supports 20-157 TOPS computing power, and the GPU can be equipped with up to 1024 CUDA cores and 32 Tensor cores. It supports a complete set of **JetPack 6.0** development kit, pre-installed CUDA, TensorRT and other tool chains, and is compatible with mainstream AI frameworks. Suitable for edge AI application scenarios such as computer vision, robots, and edge computing gateways.

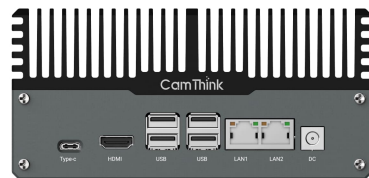
- Incremental AI power:
 - **Standard mode**: 20 TOPS (NG4510) → 100 TOPS (NG4521) .
 - **SUPER mode (INT8)** : 34 TOPS → 157 TOPS.
- Heterogeneous computing architecture (NG4521):
 - **GPU**: 1024 NVIDIA® CUDA® cores + 32 Tensor cores.
 - **CPU**: Octa-core Arm® Cortex®-A78AE v8.2 (64-bit) @ 2.0GHz.
 - **Memory**: LPDDR5 16GB, bandwidth up to 102GB/s.
- Pre-install **NVIDIA® JetPack 6.0+ SDK**, including the complete development environment of CUDA, cuDNN, TensorRT, DeepStream, etc. For system features, see **Jetpack SDK 6.0**. For system programming tutorials, please refer to the **「System Programming Guide」** .
- Supports various mainstream AI frameworks and inference service deployments: TensorFlow/Keras, PyTorch, ONNX Runtime, TensorRT, Ollama, llama.cpp, VLLM, ultralytics, etc.



Rich Hardware Interfaces

NG4500 is equipped with rich interfaces, meeting the various requirements in industrial and edge computing scenarios, tutorial guide is available here. **「Interface Configuration Guide」**

- **Gigabit network connection:** Equipped with **dual Gigabit Ethernet ports**, to ensure stable and reliable network communication, and **capable of handling up to 16 video streams encoding/decoding simultaneously** (only in specific models), suitable for industrial communication and edge computing applications.
- **Rich USB interfaces:** Equipped with **4×USB 3.1 + 1×Type-C (USB 3.2)** interfaces, which can achieve high-speed data transmission and support USB peripherals such as external cameras and storage devices.
- **Industrial-grade communication protocol:** Built-in **RS232, RS485, CAN** interfaces, supports seamless connection with various industrial-grade equipment. It has strong anti-interference ability and is suitable for complex EMC environments with strict communication requirements.
- **Automation control application:** equipped with **DI/DO interface**, supports digital signal input and output, and can realize automatic control and logical judgment.
- **HDMI output:** HDMI output, supports 4K display.
- **3.5mm audio interface:** supports microphone input, voice output.
- **6×SMA antenna interface:** supports external high-gain antenna.

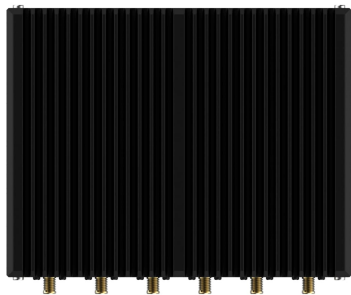


Durability and Robustness

Designed for harsh industrial environments, the edge computing box complies with industrial-grade manufacturing standards to ensure long-term stable operation under harsh conditions. For device installation and deployment instructions, see **「Quick Start」**.

- **Industrial-grade power supply design:** wide voltage input (12V-36V DC), adaptable to voltage fluctuations in industrial sites, peak power of 120W, capable of data-intensive computation. Built-in with multiple-layer protection circuits (overvoltage/overcurrent/reverse connection protection), stable support for non-stop operation in SUPER mode.

- **Compact and sturdy structure:** NG4500 measures at 160mm × 125mm × 75mm with metal casing. It supports multiple installation methods such as **desktop, wall mounting, and DIN-rail installation**.
- **Environmental adaptability: It adopts a fanless design for passive cooling. Wide temperature supported.** Operating temperature ranges from -25°C to 60°C, storage temperature ranges from -40°C to 85°C, adaptable to various industrial environments.



Product Information

Product Specification

NG4500 series edge AI box and carrier board specifications are shown below:

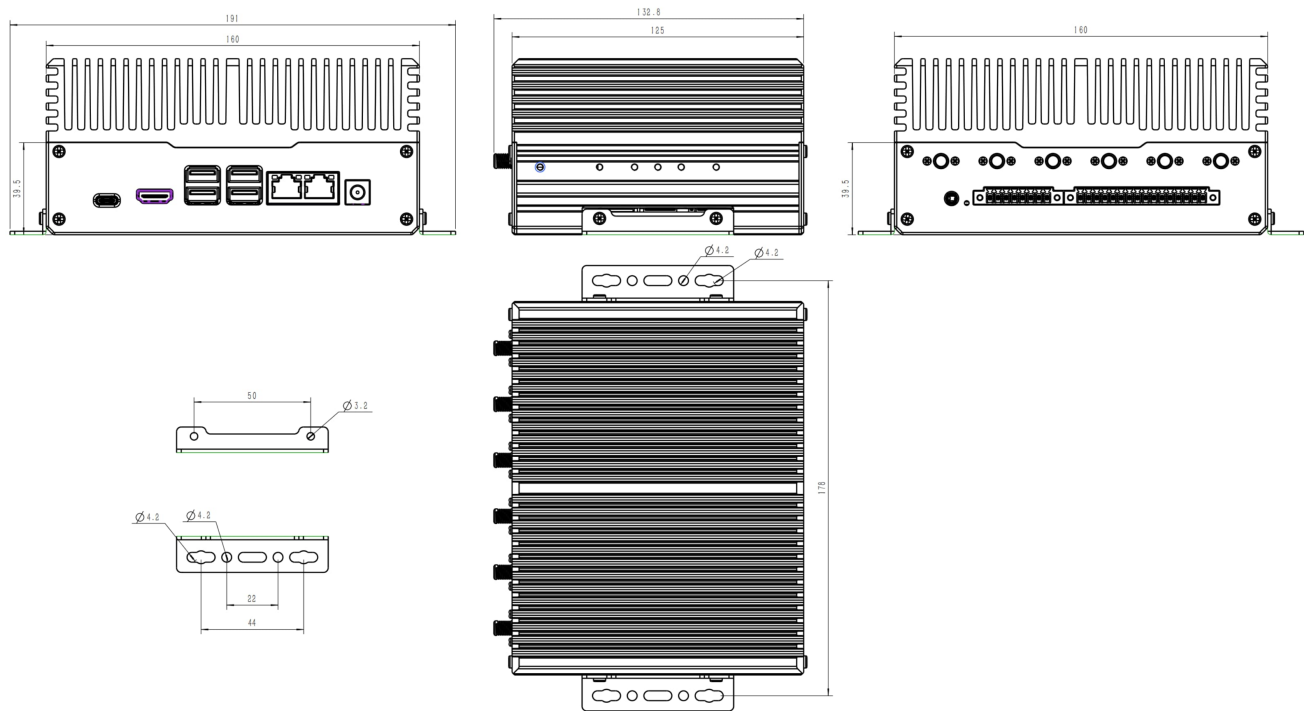
Features	NG4510/NG4511		NG4520/NG4521	
	NG4510	NG4511	NG4520	NG4521
NVIDIA® Jetson Module	Jetson Orin Nano 4GB	Jetson Orin Nano 8GB	Jetson Orin NX 8G	Jetson Orin NX 16G
AI Performance	20 TOPS	40 TOPS	70 TOPS	100 TOPS
AI Performance (SUPER)	34 INT8 TOPs	67 INT8 TOPs	117 INT8 TOPs	157 INT8 TOPs

Features	NG4510/NG4511		NG4520/NG4521	
	NG4510	NG4511	NG4520	NG4521
GPU	512 NVIDIA® CUDA® cores 16 Tensor cores	1024 NVIDIA® CUDA® cores 32 Tensor cores		
CPU	6-core Arm® Cortex® A78AE (64-bit) HMP 2x Clusters		8-core Arm® Cortex® A78AE v8.2 (64-bit) HMP 2x Clusters	
DRAM SIZE	4G	8G	8G	16G
DRAM BW	64-bit LPDDR5 DRAM 34 GB/s 51 GB/s		128-bit LPDDR5 DRAM 3200 MHz 102 GB/s	
OS	Linux			
Ethernet	2 x RJ45 (1000Mbps Ethernet)			
USB	4 x USB3.1, 1 x Type-C 4x Type-A(USB3.1), 1x Type-C(USB3.2)			
I/O Connector	4 x DI, 4 x DO, 4 x GND_DI, 4 x GND_DO, 1 x CAN, 1 x RS232, 1 x RS485, 1 x DC 5V Power			
HDMI	1 x HDMI			
Audio	1 x Audio Jack (Mic Input + Audio L/R output)			
SIM Card Slot	1 x Nano SIM Slot			
RTC	Support CR2032 RTC Battery			
FAN	1 x Fan Connector (5V PWM)			
M.2 Key B	M.2 Key B 2242/2252 support 4G/5G			

Features	NG4510/NG4511		NG4520/NG4521	
	NG4510	NG4511	NG4520	NG4521
M.2 Key E	M.2 Key E 2230 support Wi-Fi/Bluetooth			
Storage	1 x M.2 Key M PCIe4 SSD (NVMe 2280 SSD 128G/256G/512G/1T Optional) 1 x M.2 Key M PCIe1 SSD			
Power Supply	DC input 12V-36V, Peak Power 120W			
LED Indicator	1 x Power LED, 1 x Wi-Fi LED, 1 x 4G LED, 1 x Ethernet LED			
Operating Temperature	-25°C to 60°C			
Storage Temperature	-40°C to 85°C			
Operating Humidity	0% - 90% (non-condensing)			
Dimensions	160mm x 125mm x 75mm			
Weight	1.9Kg			
Installation	Desk, Wall mounting, DIN-rail			
SMA Antenna Connector	4-6 (4G+Wi-Fi with a total of 4 antenna, 5G+Wi-Fi with a total of 6 antenna)			
Thermal	Fanless			
Certification	CE/FCC/RoHs			
Warranty	2-year			

Product Dimension

Product casing and bracket dimension instruction：



Product Accessories

Standard Accessories

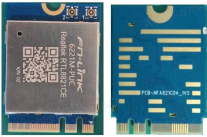
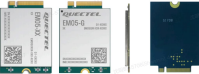
CamThink NeoEdge NG4500 series provides following standard accessories:

图片	名称	数量	说明
	power adapter(optional)	1	input: 100-240V AC output: 12V/5A DC
	powercable(option al)	1	standard 3C power cable 1.5m, EU standard by default, other regions optional
	Industrial-grade terminal blocks (standard accessories)	2	16pin male terminal connector*1、 8pin male terminal connector*1

图片	名称	数量	说明
	Mounting bracket (standard accessory)	2	Wall mounting brackets*2、DIN-rail bracket*1

Optional Accessories

CamThink NeoEdge NG4500 series offers optional accessories as follows:

图片	名称	数量	说明
	SSD	1	M.2 NVMe SSD capacity 256G-1TB optional
	Wi-Fi module	1	6221M-PUC dual-band Wi-Fi and bluetooth 5.0 module
	4G module	1	Quectel EM05 EM05-G 4G M.2 module, supports Europe, America, China, Japan, Australia frequency bands.
	5G module	1	Quectel RM520N-GL 5G M.2 module, supports global mainstream bands.
	fan	1	cool fan kits, suitable for NG4500 carrier board
	Raspberry Pi Camera Module 2	1	SONY IMX219 3280*2464 1/4' 1.12um
	Raspberry Pi High Quality Camera	1	SC0870 Raspberry Pi M12 High Quality Camera

Product Applications

Applicable Scenarios

NG4500 series edge computing boxes can be used in various industries with their powerful computation power and industrial-grade reliability.

Smart manufacturing



Quality inspection

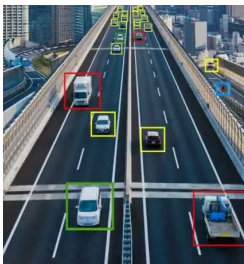
Leveraged the integration with YOLOv5/v8 target detection model and...



Automated sorting

Collaborating with the industrial robot arm in synchronization, the mixed materials are...

Smart cities



Traffic monitoring

It supports real-time HD video analysis of up to 16 streams simultaneously and...



Behavior detection

Integrating face recognition, behavior analysis and abnormal event detection...

Unmanned systems



AGV navigation

Based on lidar and visual sensors, the hybrid SLAM technology supports...



Robotic systems

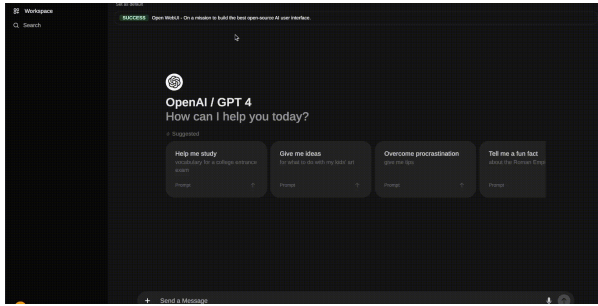
By deploying a multi-modal interactive system that integrates functions such as...

Sample of Application Engineering

NG4500 series products can be deployed in diverse scenarios, we have listed the typical use cases in the content below. Each use case is equipped with a detailed implementation

guide to support the fast replication and application.

LLM Chatbot



This guide introduce how to use Ollama(lightweight inference engine) to...

Pose Estimation



This article describes how to use MediaPipe to run real-time pose...

YoLo Object Detection



This tutorial will guide you on how to deploy a YOLOv8 model on the NVIDIA...

Product Documentation

Tutorial Guide

About how to quickly use NG4500 series Edge AI Box, please refer to [「Quick Start Guide」](#)

About how to use NG4500-CB01 carrier board, and it's related hardware, and operating system development, please refer to [「Development Guide」](#)

About NG4500 series product application guide, please refer to [「Application Guide」](#)

Technical Support and Community



Join Developer Community

Chat with developers about technical issues

Get the latest product updates and tutorials



GitHub Repository

Submit issues to report problems

View source code and contribute

FCC Warning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures: - Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement:

- (1) This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
- (2) The device has been evaluated to meet general RF exposure requirement