IBOXNANO Edge AI

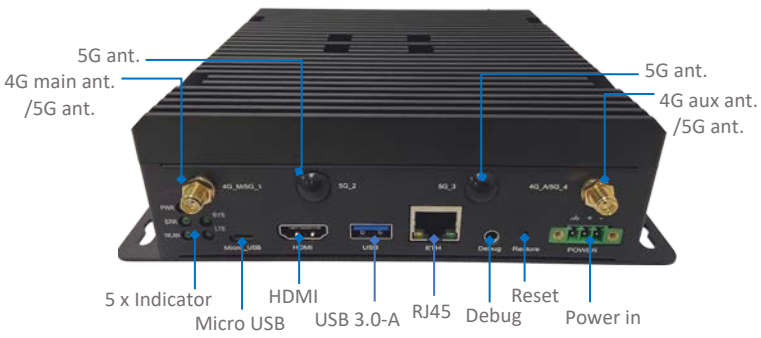
Embedded Industrial Computer

Product Brief

Vantron IBOXNANO is an entry-level edge AI embedded industrial computer, powered by the NVIDIA® Jetson Nano™ core module, which integrates a quad-core ARM Cortex-A57 MPCore CPU and NVIDIA® Maxwell™ GPU with 128 CUDA® cores to deliver up to 512 GFLOPS compute performance. It also supports popular AI frameworks such as TensorFlow, Keras, PyTorch, Caffe, and MXNet for flexible deployment of AI applications.

IBOXNANO offers a gigabit Ethernet jack, Wi-Fi 6, Bluetooth 5.0, along with 4G and optional 5G cellular connectivity to ensure stable and reliable interfacing with sensors, cameras, and other edge devices. Its edge computing feature enables data to be processed and analyzed at the network edge where data is generated before being transmitted to the data center. This greatly relieves the network congestion and reduces data latency. IBOXNANO features rich interfaces, such as USB, RS232/RS485, CAN, GPIO, DI, DO for flexible user expansion. Its built-in hardware-based encryption, TPM module, encryption/decryption algorithms ensure data protection and secure operation in edge deployments. Typical application of IBOXNANO includes smart grid, smart city, intelligent monitoring and management.

Exterior and Features

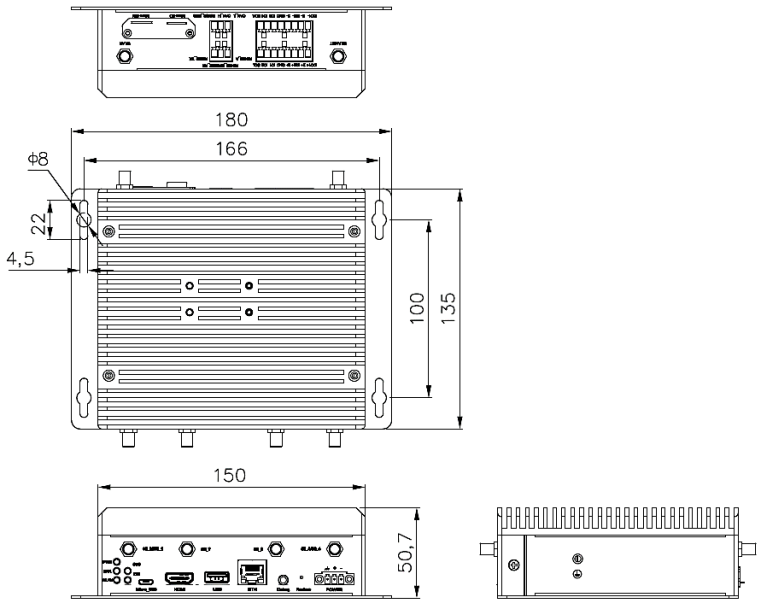


IBOXNANO
NVIDIA Jetson Nano core module
Multi-standard video decoder & encoder
Support for 4K UHD (3840 x 2160) video output
Gigabit Ethernet, Wi-Fi 6, BT 5.0, 4G/5G connectivity
Rich interfaces for flexible expansion
Support for popular AI frameworks
Support for edge computing
Compact size for flexible deployment

IBOXNANO Edge AI Embedded industrial computer Datasheet

IBOXNANO			
System	CPU	NVIDIA Jetson Nano, Quad-core ARM Cortex-A57 MPCore processor, up to 1.43GHz	
	AI performance	512 GFLOPS	
	GPU	NVIDIA Maxwell GPU with 128 CUDA Cores	
	Memory	4GB 64-bit LPDDR4 (Optional: 8GB)	
	Storage	16GB eMMC 5.1 (Optional: 64GB, 128GB)	1 x Micro SD slot
Communication	Ethernet	1 x RJ45, 1000Mbps	
	Wi-Fi & Bluetooth	Wi-Fi 6 & BT 5.0	
	Cellular	4G LTE (Optional: 5G)	
I/Os	Serial port	1 x RS232/RS485, isolated (1 x 3 x 3.81mm, baud rate: 115200)	
	USB	1 x USB 3.0 Type-A	1 x Micro USB (USB 2.0 OTG supported)
	Video output	1 x HDMI 2.0, 3840 x 2160 @60Hz	
	DI/DO	2 x DI	2 x DO
	Expansion I/O	1 x CAN 1 x I^2C 4 x GPIO	
	Debug	1 x 3.5mm Audio jack	
	SIM slot	1 x Micro SIM slot	
	Antenna	1 x Wi-Fi + 1 x Wi-Fi & BT SMA connectors 4 x 5G SMA connector / 2 x 4G SMA connector	
	RTC	Supported	
	WDT	Supported	
System Control	LED indicator	1 x Power indicator 1 x System indicator 1 x Error indicator	1 x Cellular connectivity indicator 1 x Wi-Fi connectivity indicator
	Button	1 x Reset button	
Power	Input	12V-36V DC	1 x Power terminal (1 x 3 x 3.81mm)
Software	Operating system	Ubuntu 18.04	
	Video encode	1x 4K @30 (HEVC) 2x 1080p @60 (HEVC)	4x 1080p @30 (HEVC)
	Video decode	1x 4K @60 (HEVC) 2x 4K @30 (HEVC)	4x 1080p @60 (HEVC) 8x 1080p @30 (HEVC)
	AI framework	TensorFlow, Keras, PyTorch, Caffe, MXNet	
	Security	ARM Trustzone, TPM, SHA, AES	
Mechanical	Dimensions	180mm x 135mm x 50.7mm (with mounting brackets)	
	Installation	Wall mount (Optional: DIN rail mount)	
	IP rating	IP40	
	Cooling mode	Fanless	
Environment Condition	Temperature	Operating: -20°C ~ 60°C	Storage: -40°C ~ 85°C
	Humidity	Operating: 5%~95% RH (Non-condensing)	
	EMC	EMC level 3	
	Certification	FCC, CE, ISED, PTCRB	

Product Outline



Ordering Information

Ordering No.	Memory & Storage	Ethernet	Wi-Fi & BT	Cellular
IBOXNANO-L4	4GB + 16GB	1000Mbps	Wi-Fi 6 & BT 5.0	4G
IBOXNANO-L5	4GB + 16GB	1000Mbps	Wi-Fi 6 & BT 5.0	5G
IBOXNANO-M4	8GB + 64GB	1000Mbps	Wi-Fi 6 & BT 5.0	4G

* More variants are available, please contact the sales executive for details.

Packing list	
IBOXNANO embedded industrial computer	1
Wi-Fi & BT antenna (robber)	2
4G LTE antenna (magnetic sucker)	2
Qualified certificate	1

Optional accessories	
12V DC power adapter	1
AC power cord (US)	1
DC power connector	1
5G antenna (magnetic sucker)	4

Since its establishment in 2002 by two Silicon Valley entrepreneurs, Vantron Technology has been at the forefront of the connected IoT devices and IoT platform solutions. Today, Vantron boasts a global customer base that includes several Fortune 500 companies. Its product lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud device management platform.

With over 20 years of experience in R&D of embedded edge intelligent hardware, Vantron has provided users with diverse embedded solutions featuring ARM and X86 architectures. Its offerings range from Linux to Windows, from embedded to desktop level, and from gateway to server. In addition, it provides users with system clipping, driver transplantation and other related services.