REBOTNIX®
INDUSTRIAL A.I. SOLUTIONS

GUSTAV-I7

ALL IN ONE EDGE SOLUTION

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ABOUT GUSTAV-I7

SUPPORTS NVIDIA JETSON ORIN NX, XAVIER NX 8GB & 16GB

The GUSTAV-I7 hardware series offers a wide range of edge computers that are positioned in the market as a comprehensive solution.

Devices from the GUSTAV-I7 series were developed to meet the highest quality standards while also supporting various internal add-ons such as UBLOX RTK-GPS with wheel encoder, directional connector, LTE modem, WiFi (2.4 GHz and 5 GHz), M.2 SSDs, GPIO and service port.

NVIDIA PREFERRED PARTNER

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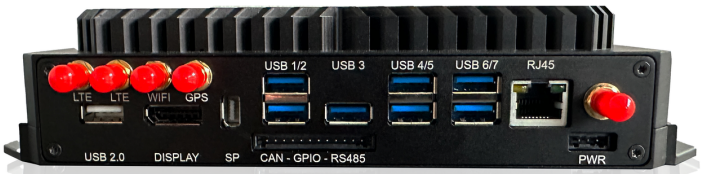
PRODUCTS OVERVIEW

SUPPORTS ORIN NX ORIN NANO
SUPPORTS XAVIER NX

GUSTAV-I7 ORIN NX 16GB

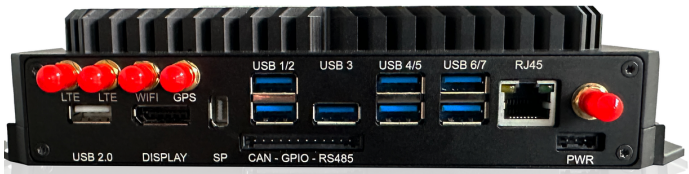
BASED ON NVIDIA JETSON ORIN NX 16GB



SKU-PART-NO: **RBC_GI7USBNX016**

GUSTAV-I7 ORIN NX 8GB

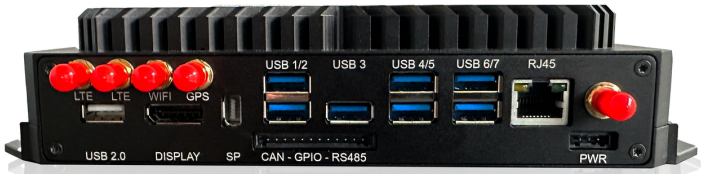
BASED ON NVIDIA JETSON ORIN NX 8GB



SKU-PART-NO: **SKU: RBC_GI7USBNX08**

GUSTAV-I7 ORIN NANO 8GB

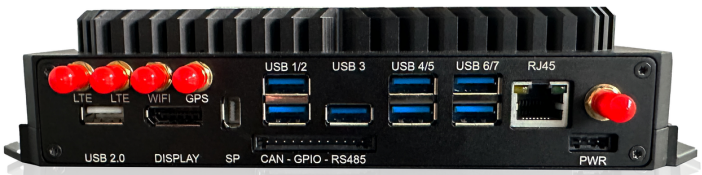
BASED ON NVIDIA JETSON ORIN NANO 8 GB



SKU-PART-NO: **RBC_GI7USBNANO8**

GUSTAV-I7 ORIN NANO 4GB

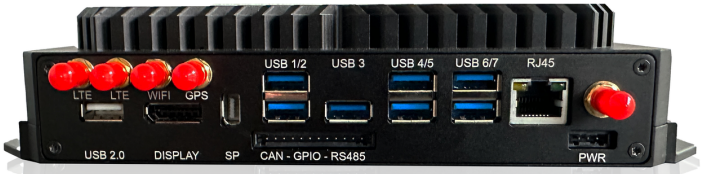
BASED ON NVIDIA JETSON ORIN NANO 4 GB



SKU-PART-NO: **RBC_GI7USBNANO4**

GUSTAV-I7 XAVIER NX 16 GB

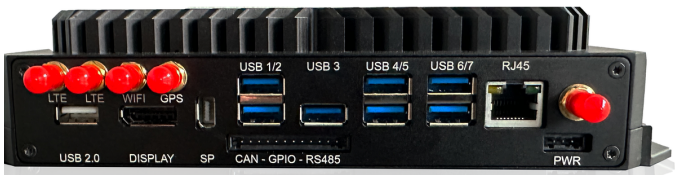
BASED ON NVIDIA JETSON XAVIER NX 16 GB



SKU-PART-NO: **RBC_GI7USBNXX16**

GUSTAV-I7 XAVIER NX 8 GB

BASED ON NVIDIA JETSON XAVIER NX 8 GB



SKU-PART-NO: **SKU: RBC_GI7USBNXX8**

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READY TO GO SOLUTION

GUSTAV-I7 contains all optimized frameworks, including the REBOTNIX CUSTOM SDK Manager with device hardware drivers.

The software is also optimized by us and supplied pre-installed:

- Latest Jetpack version support > 4.6 - 5.1.2 or higher
- OpenCV optimized and compiled with CUDA accerlation
- Pytorch optimized version
- One click refresh images with all hardware drivers, not need for flashing services or complex patching

LIFECYCLE TO JANUARY 2030

During the product lifecycle, there may be changes to hardware components that may be accompanied by corresponding software changes (e.g. memory component updates). REBOTNIX reserves the right to make changes to availability at any time based on the supply chains of suppliers from the chip industry, e.g. NVIDIA Corp.

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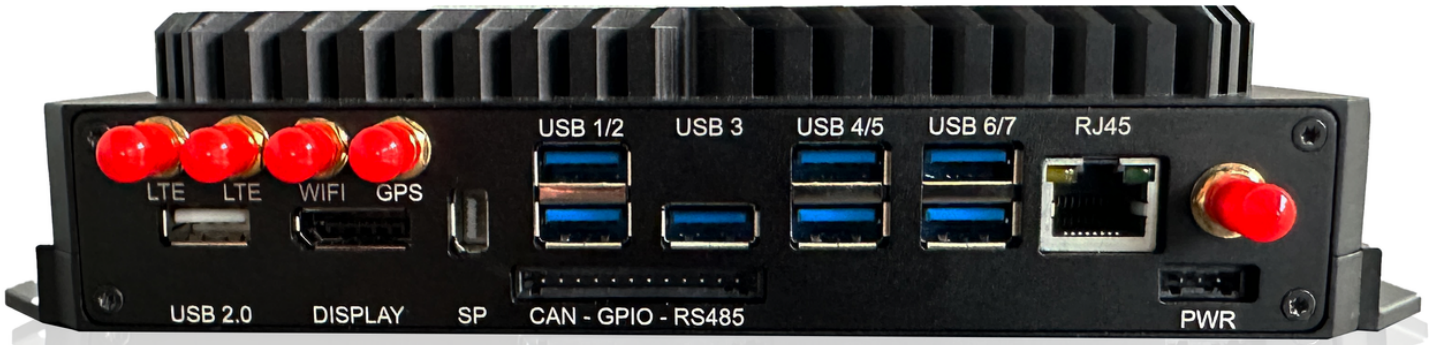

SECURE HARDWARE AUTHENTICATION

FEATURES

- Crypto Element with Protected Hardware-based Key Storage.
- Secure Symmetric Authentication Device Host and Client Operations.
- Superior SHA-256 Hash Algorithm with Message Authentication Code (MAC) and Hash-Based Message Authentication Code (HMAC) Options.
- Best-in-class, 256-bit Key Length; Storage for Up to 16 Keys.
- Guaranteed Unique 72-bit Serial Number.
- Easy to use REBOTNIX free crypto programmer test and run application (works only with hardware). Python, C++, JS bindings.

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SECURE HARDWARE AUTHENTICATION

For the verifiability of AI applications as well as the European cybersecurity law and the upcoming AI ACT, proof of generated AI data of the liability issue is mandatory.

REBOTNIX edge systems include a hardware 256 bit based cryptochip on the mainboard. In combination with NVIDIA JETSON GPU and GUSTAV-I7 as host, we can now create more secure AI applications and protect custom generated models.

The Microchip's is a full turnkey security device. It includes a 4.5Kb EEPROM divided into 16 slots. This array can be used for storage of keys, miscellaneous read/write, read-only, password or secret data, and consumption tracking. Access to the various sections of memory can be restricted in a variety of ways and then the configuration locked to prevent changes.

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NVIDIA JETSON ORIN NX 8GB & 16GB

PROPERTY	INFO	INFO
GPU	ORIN NX 8GB OR 16GB	8GB (70 TOPS) / 16GB (100 TOPS) 1024 CUDA CORES 32 TENSOR CORES
USB 3.2 PORTS	7	2 x NATIVE (USB 1+2) 5 x SHARED USB | 10 GB
NETWORK	1 x 100 MBIT / 1000 MBIT	RJ-45
COOLING	INVISIBLE ACTIVE	CONTROLABLE PWM FAN WITH SOFTWARE
CASE	FULL ALUMINIUM BLOCK	190x47x105 (1400g incl. POWER SUPPLY UNIT)
DISPLAY	1 x DISPLAY PORT	ACTIVE
POWERING	1 x 12-30 VOLTS INPUT	HAR-FLEXICON 2,54 (3 Pin) AUTOMATIC POWER FUNCTION VIA MICROCONTROLLER
ANTENNAS	2 x LTE, 1 x WIFI, 1 x GPS	EXTERNAL (SMA, RPSMA, SMA) (ANTENNAS NOT INCLUDED)
DIGITAL IO	4 IN & 2 OUT, RS485 (half duplex) & CAN	HAR-FLEXICON 2,54 (12 PIN)
SERVICE PORT	IX CONNECTOR	FOR FLASHING & DEBUGGING

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NVIDIA JETSON ORIN NANO 4GB & 8GB

PROPERTY	INFO	INFO
GPU	ORIN NX 8GB OR 16GB	4GB (20 TOPS) 8GB (40 TOPS) 512 Cores and 16 Tensor-Cores
USB 3.2 PORTS	7	2 x NATIVE (USB 1+2) 5 x SHARED USB | 10 GB
NETWORK	1 x 100 MBIT / 1000 MBIT	RJ-45
COOLING	INVISIBLE ACTIVE	CONTROLABLE PWM FAN WITH SOFTWARE
CASE	FULL ALUMINIUM BLOCK	190x47x105 (980g)
DISPLAY	1 x DISPLAY PORT	ACTIVE
POWERING	1 x 12-30 VOLTS INPUT	HAR-FLEXICON 2,54 (3 Pin) AUTOMATIC POWER FUNCTION VIA MICROCONTROLLER
ANTENNAS	2 x LTE, 1 x WIFI, 1 x GPS	EXTERNAL (SMA, RPSMA, SMA) (ANTENNAS NOT INCLUDED)
DIGITAL IO	4 IN & 2 OUT, RS485 (half duplex) & CAN	HAR-FLEXICON 2,54 (12 PIN)
SERVICE PORT	IX CONNECTOR	FOR FLASHING & DEBUGGING

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NVIDIA JETSON XAVIER NX 8GB & 16GB

PROPERTY	INFO	INFO
GPU	XAVIER NX 8GB OR 16GB	8GB (21 TOPS) 16GB (21 TOPS) 384 Cores und 48 Tensor-Cores
USB 3.2 PORTS	7	2 x NATIVE USB 2.0 (USB 1+2) 5 x SHARED USB
NETWORK	1 x 100 MBIT / 1000 MBIT	RJ-45
COOLING	INVISIBLE ACTIVE	CONTROLABLE PWM FAN WITH SOFTWARE
CASE	FULL ALUMINIUM BLOCK	190x47x105 (980g)
DISPLAY	1 x DISPLAY PORT	ACTIVE
POWERING	1 x 12-30 VOLTS INPUT	HAR-FLEXICON 2,54 (3 Pin) AUTOMATIC POWER FUNCTION VIA MICROCONTROLLER
ANTENNAS	2 x LTE, 1 x WIFI, 1 x GPS	EXTERNAL (SMA, RPSMA, SMA) (ANTENNAS NOT INCLUDED)
DIGITAL IO	4 IN & 2 OUT, RS485 (half duplex) & CAN	HAR-FLEXICON 2,54 (12 PIN)
SERVICE PORT	IX CONNECTOR	FOR FLASHING & DEBUGGING

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OPTIONAL HARDWARE ADDONS

PROPERTY		INFO
LTE MODEM	SIM7600G-H	LTE-CAT-4, 3G & 2G INTERNAL GNSS
GPS	UBLOX F9P OR F9R(B)	F9P 10 Hz | F9R(B) 30 Hz INTERNAL MOUNTED
WLAN	ST60-SIPT	802.11 A-N 2,4GB & 5GB
STORAGE	1 X M.2 NVME SSD	UP TO 4 TERABYTES STORAGE
SERVICE BOX	CONVERTER FOR FLASHING & DEBUGGING	ALLOWS FLASHING & DEBUGGING OVER USB TERMINAL (NO EXTERNAL HDMI OR KEYBOARD IS REQUIRED)

DIGITAL IO

1	2	3	4	5	6	7	8	9	10	11	12
DIR	WT	OUT1	IN1	GPIO2	GPOI1	CAN-L	CAN-H	RS-485B	RS-485A	5V	GND

DIR = GPS DIRECTION ONLY FOR F9R(B) GPS
WT = GPS WHEELTICK ONLY FOR F9R(B)

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READY TO GO COMPONENTS

REBOTNIX Developer SDK (Software Development Kit) supports several third party add-ons to make working with the hardware components and machine learning easy. This SDK is bundle with the hardware. You cant use it on other hardware Jetson plattforms.

RB-CAM-BASLER

BASLER
the power of sight

This module offers the integration and support of Basler cameras, GIGe and USB3 cameras. We support a raw signal wrapper for integration into Darknet YOLO or PyTorch frameworks. No gstreamer wrapper is needed and we guarantee lowest latency under 10-20 milliseconds of delay (uncompressed).

RB-CAM-AV

Allied Vision

This module offers the integration of allied vision cameras, GIGe, USB3 or FDP-LINK cameras. We support raw signal wrapper for integration into darknet yolo or pytorch frameworks. No gstreamer wrapper is needed and we guarantee lowest latency under 10 milliseconds of delay.

RB-GPS

ublox

This module offers the integration of UBLOX-GPS chips. We support a raw signal wrapper for integration into your own python pipelines. Besides the coordinates of latitude and longitude you also get information about speed as well as the number of available satellites and the signal quality. With a Hertz rate of up to 10 per second we guarantee lowest latency and a very precise signal.

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The REBOTNIX-SDK components at a glance.

RB-GPS-KINEMATICS

This module offers the integration of UBLOX-RTK-GPS chips. We support a raw signal wrapper for integration into your own python pipelines. Besides the coordinates of latitude and longitude you also get information about speed as well as the number of available satellites and the signal quality. With a Hertz rate of up to 20 per second we guarantee lowest latency and a very precise signal.

RB-IP

This modules offers the integration of standard IP cameras that communicate over several protocols. With our SDK , we are able to decode H.264 or HEVC or AV1 directly into pipelines for Darknet Yolo, Pytorch or OpenCV with CUDA acceleration.

- RTSP HEVC (H.265 & H.264)
- SRT (Secure Reliable Transport)
- RTMP (ONLY H.264)
- MPEG-TS (H.264 & HEVC & AV1)
- HTTP & HTTPS
- UDP & TCP

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The SDK components at a glance.

RB-VISIONTOOLS-INFERENCE ENGINE

This module offers the integration of real-time object-detection running on the edge, using an optimized custom trained Object Detection Model. Since it natively runs on TRT it offers a very high frames-per-second (FPS) rate. It therefore enables the user to build real-time applications. This module runs only on a NVIDIA embedded GPU.

RB-COMPRESS

This module offers the integration of an optimized image-compression into you python pipelines. It is a tool for compressing relevant image information for transferring to the smallest possible file size. By reducing the file size the user saves data volume, as well as time and cost in application hosting such as smart city applications, robotics or any other IoT without losing information. The image compression supports accerlated AVIF compression.