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NVIDIA ELITE PARTNER

Seeed Studio NVIDIA® Jetson Series Catalog V1.3

Your trusted one-stop platform for NVIDIA® Jetson products

seeedstudio.com/nvidia-jetson.html

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Introduction

Almost all industries are being transformed by the rapid growth of artificial intelligence (AI) and the proliferation of billions of Internet of Things (IoT) devices. Such developments pose various challenges, including the need for highly advanced computing power. With the advent of AI at the edge, we can now envision applications we would not have previously considered.

The NVIDIA® Jetson series bring incredible new capabilities to the edge to accelerate product development and deployment. As one of NVIDIA's ecosystem partners, Seeed's professional hardware development team provides a full range of hardware products based on NVIDIA Jetson modules, including carrier boards, mini-PCs, edge AI servers, and peripherals, enabling you to develop and deploy innovative products across various industries.
In addition, our team is well-prepared to deliver custom service based on Jetson to satisfy your needs for various AIoT scenarios.

Seeed aims to provide you with a one-stop-shop experience of NVIDIA Jetson products and simplify the process of developing your AI projects.

Contents of Catalog

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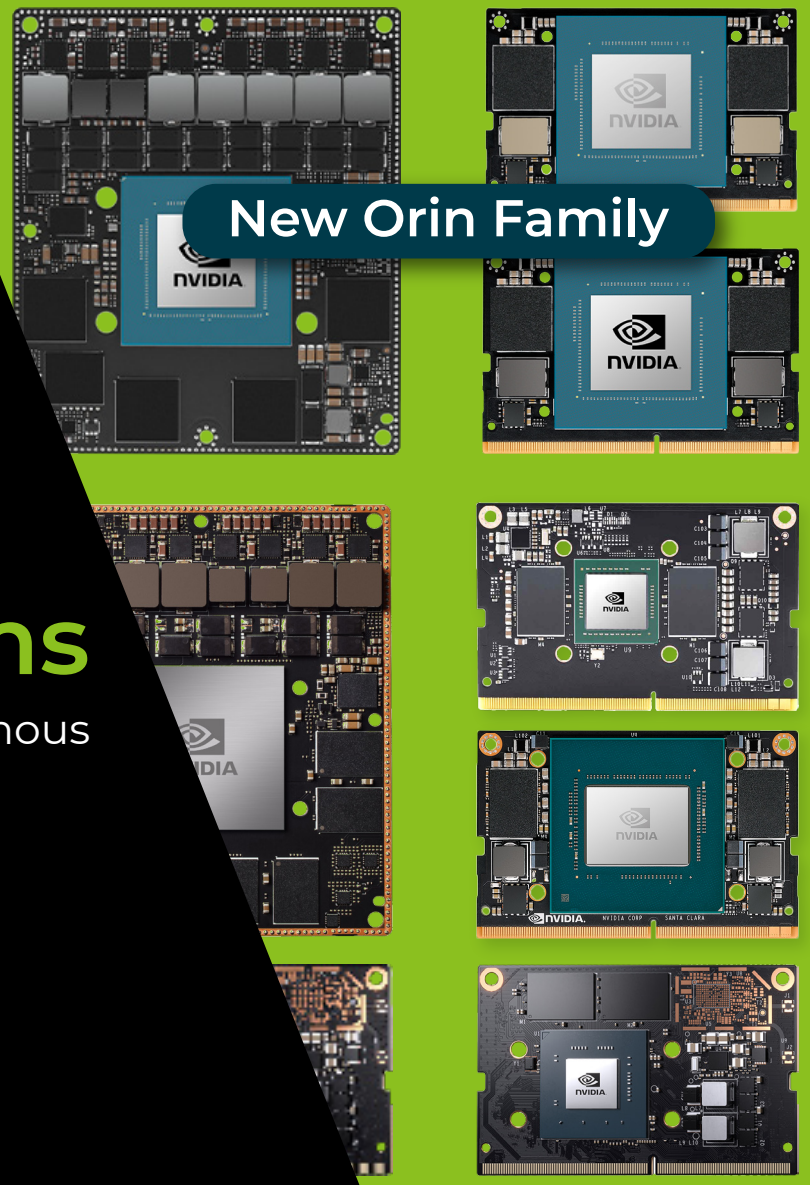
Advanced AI Embedded Systems

NVIDIA Jetson: The AI platform for autonomous machines.



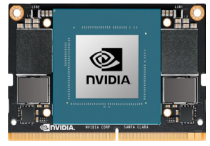
*Pictures from NVIDIA

The Jetson family

For AI at the Edge and Autonomous Machines

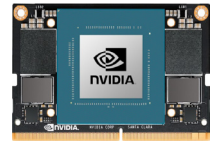
Next-Gen: Jetson Orin

JETSON Orin Nano 4GB
20 TOPs (INT8)



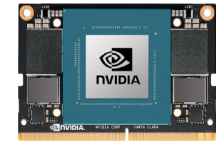
5 - 10W
45mm x 70mm

JETSON Orin Nano 8GB
40 TOPs (INT8)



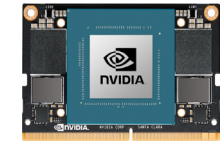
7 - 15W
45mm x 70mm

JETSON Orin NX 8GB
70 TOPs (INT8)



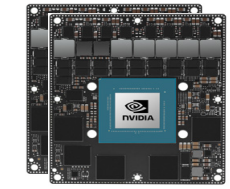
10 - 20W
45mm x 70mm

JETSON Orin NX 16GB
100 TOPs (INT8)



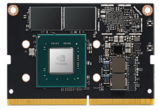
10 - 25W
45mm x 70mm

JETSON AGX Orin Series
275 TOPs (INT8)



15- 60W
32GB/64GB
100mm x 87mm

JETSON NANO
0.5 TFLOPS (FP16)

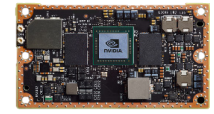


5 - 10W
45mm x 70mm

JETSON TX2 NX
1.33 TFLOPS (FP16)

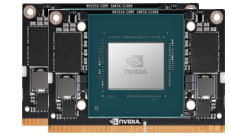
7.5 - 15W
45mm x 70mm

JETSON TX2 series
1.33 TFLOPS (FP16)



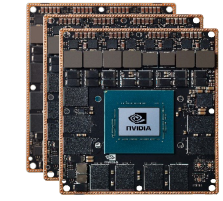
7.5 - 15W
50mm x 87mm

JETSON Xavier NX series
21 TOPS (INT8)



10 - 20W
8GB/16GB
45mm x 70mm

JETSON AGX Xavier Series
32 TOPS (INT8)

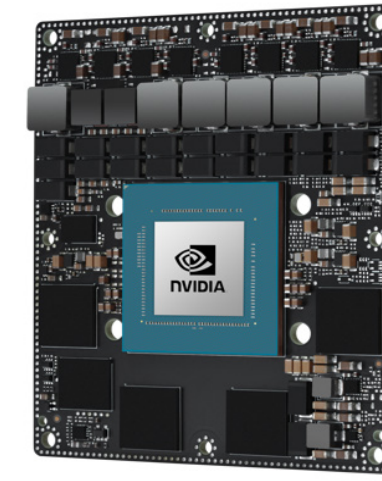


10 – 30W
32GB/64GB
100mm x 87mm

source: NVIDIA

Module Specification

	Jetson AGX Xavier	Jetson AGX Xavier 64GB	Jetson AGX Orin 32GB	Jetson AGX Orin 64GB
AI Performance	32 TOPS (De)		200 TOPS (Sp) |100 TOPS (De)	275 TOPS (Sp) |138 TOPS (De)
GPU	512-core NVIDIA Volta GPU with 64 Tensor Cores		1792-core NVIDIA Ampere GPU with 56 Tensor Cores	2048-core NVIDIA Ampere GPU with 64 Tensor Cores
DL Accelerator	2x NVDLA		2x NVDLA v2	
Vision Accelerator	2x PVA v1		PVA v2	
CPU	8-core NVIDIA Carmel Arm®v8.2 64-bit CPU 8MB L2 + 4MB L3		8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	12-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU 3MB L2 + 6MB L3
Memory	32GB 256-bit LPDDR4x @ 2133MHz 137 GB/s	64GB 256-bit LPDDR4x @ 2133MHz 137 GB/s	32 GB 256-bit LPDDR5 @ 3200MHz 204.8 GB/s	64 GB 256-bit LPDDR5 @ 3200MHz 204.8 GB/s
Storage	32GB eMMC 5.1		64 GB eMMC 5.1	
Video Encode	4x 4K60 | 8x 4K30 | 16x 1080p60 | 32x 1080p30 (H.265) H.264, VP9		1x 4K60 | 3x 4K30 | 6x 1080p60 | 12x 1080p30 (H.265) H.264, AV1	2x 4K60 | 4x 4K30 | 8x 1080p60 | 16x 1080p30 (H.265) H.264, AV1
Video Decode	2x 8K30 | 6x 4K60 | 12x 4K30 | 26x 1080p60 | 52x 1080p30 (H.265) H.264, VP9		1x 8K30 | 2x 4K60 | 4x 4K30 | 9x 1080p60| 18x 1080p30 (H.265) H.264, VP9, AV1	1x 8K30 | 3x 4K60 | 7x 4K30 | 11x 1080p60| 22x 1080p30 (H.265) H.264, VP9, AV1
Camera	16 lanes MIPI CSI-2 (36 Virtual Channels) | 8 lanes SLVS-EC| D-PHY 40Gbps / C-PHY 62 Gbps		16 lanes MIPI CSI-2 (16 Virtual Channels*) D-PHY 2.1 40Gbps / C-PHY 2.0 164Gbps	
PCI Express	16 lanes PCIe Gen 4 1 x8, 1 x4, 1 x2, 2 x1		22 lanes PCIe Gen 4 Up to 2 x8, 1 x4, 2 x1	
Ethernet	1 Gbe RGMII		1 Gbe RGMII | 1x 10Gbe XFI	
Mechanical	100mm x 87mm 699 pin connector		100mm x 87mm 699 pin connector	
Power	10W to 30W		15W to 40W	15W to 60W

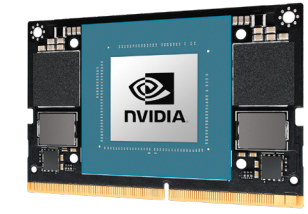


* Refers to both Jetson Xavier NX and Jetson Xavier NX 16GB
* * Refers to both Jetson AGX Xavier and Jetson AGX Xavier 64GB

source: NVIDIA

Module Specification

	Jetson Xavier NX	Jetson Xavier NX 16GB	Jetson Orin NX 8GB	Jetson Orin NX 16GB
AI Performance	21 TOPS (De)		70 TOPS (Sp) |35 TOPS (De)	100 TOPS (Sp) |50 TOPS (De)
GPU	384-core NVIDIA Volta™ GPU with 48 Tensor Cores		1024-core NVIDIA Ampere	GPU with 32 Tensor Cores
DL Accelerator	2x NVDLA		NVDLA v2	2x NVDLA v2
Vision Accelerator	2x PVA v1		PVA v2	
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 6MB L2 + 4MB L3		6-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	8-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3
Memory	8 GB 128-bit LPDDR4x @1600 MHz, 51.2GB/s	16 GB 128-bit LPDDR4x @1600 MHz, 51.2GB/s	8GB 128-bit LPDDR5 @3200 MHZ 102.4 GB/s	16GB 128-bit LPDDR5 @3200MHZ 102.4 GB/s
Storage	16GB eMMC 5.1		— (Supports external NVMe)	
Video Encode	2x 4K60 | 4x 4K30 | 10x 1080p60 | 22x 1080p30 (H.265) H.264, H.265, VP9		1x 4K60 | 2x 4K30| 5x 1080p60 | 11x 1080p30 (H.265) H.264, H.265, AV1	
Video Decode	2x 8K30 | 6x 4K60 | 12x 4K30 | 22x 1080p60 | 44x 1080p30 (H.265) H.264, H.265, VP9		1x 8K30 | 2x 4K60 | 4x 4K30 | 9x 1080p60 | 18x 1080p30 (H.265) H.264, H.265, VP9, AV1	
Camera	Up to 6 cameras (36 via virtual channels) | 12 lanes MIPI CSI-2| D-PHY 1.2 (up to 30 Gbps)		Up to 4 cameras (8 via virtual channels*) | 8 lanes MIPI CSI-2| D-PHY 1.2 (up to 20Gbps)	
PCI Express	5 lanes PCIe Gen 3 1 x4, 1 x1		7 lanes PCIe Gen 4 1 x4, 3 x1	
Ethernet	1 Gbe via MDI		1 Gbe via MDI	
Mechanical	69.6 mm x 45 mm 260-pin SO-DIMM connector		69.6 mm x 45 mm 260-pin SO-DIMM connector	
Power	10W to 20W		10W to 20W	10W to 25W

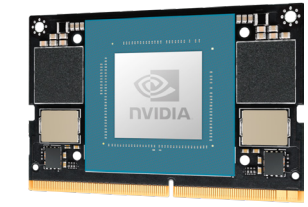


* Refers to both Jetson Xavier NX and Jetson Xavier NX 16GB
* * Refers to both Jetson AGX Xavier and Jetson AGX Xavier 64GB

source: NVIDIA

Module Specification

	Jetson Nano	Jetson TX2 NX	Jetson Orin Nano 4GB	Jetson Orin Nano 8GB
AI Performance	0.5 TFLOPS (Dense)	1.33 TFLOPS (Dense)	20 TOPS (Sparse) |10 TOPS (Dense)	40 TOPS (Sparse) |20 TOPS (Dense)
GPU	128-core NVIDIA Maxwell™ GPU	256-core NVIDIA Pascal™ GPU	512-core NVIDIA Ampere GPU with 16 Tensor Cores	1024-core NVIDIA Ampere GPU with 32 Tensor Cores
CPU	4-core Arm® Cortex®-A57 MPCore processor, 1.5 GHz	2-core Denver 2 64-bit CPU and 4core Arm® Cortex®-A57 MPCore processor, 2.0 GHz	6-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU, 1.5 GHz 1.5MB L2 + 4MB L3	6-core NVIDIA Arm® Cortex A78AE v8.2 64-bit CPU, 1.5 GHz 1.5MB L2 + 4MB L3
Memory	4 GB 64-bit LPDDR4x @1600 MHz, 25.6 GB/s	4 GB 128-bit LPDDR4x @1600 MHz, 51.2GB/s	4GB 64-bit LPDDR5 @2133 MHZ, 34 GB/s	8GB 128-bit LPDDR5 @2133 MHZ, 68 GB/s
Storage	16GB eMMC 5.1	16GB eMMC 5.1	— (Supports external NVMe)	— (Supports external NVMe)
Video Encode	1x 4K30 | 2x 1080p60 | 4x 1080p30 (H.265) H.264, H.265, VP9	1x 4K60 | 3x 4K30 | 4x 1080p60 | 8x 1080p30 (H.265) H.264, H.265, VP9	1080p30 supported by 1-2 CPU cores	1080p30 supported by 1-2 CPU cores
Video Decode	1x 4K60 | 2x 4K30 | 4x 1080p60 | 4x 1080p30 (H.265) H.264, H.265, VP9	2x 4K60 | 4x 4K30 | 7x 1080p60 | 14x 1080p30 (H.265) H.264, H.265, VP9	1x 4K60 | 3x 4K30 | 6x 1080p60 | 12x 1080p30 (H.265) H.264, H.265, VP9, AV1	1x 4K60 | 3x 4K30 | 6x 1080p60 | 12x 1080p30 (H.265) H.264, H.265, VP9, AV1
Camera	12 lanes MIPI CSI-2| D-PHY 1.1 (up to 18 Gbps)	Up to 5 cameras (12 via virtual channels) | 12 lanes MIPI CSI-2| D-PHY 1.2 (up to 30 Gbps)	Up to 4 cameras (8 via virtual channels*) | 8 lanes MIPI CSI-2| D-PHY 1.2 (up to 20 Gbps)	Up to 4 cameras (8 via virtual channels*) | 8 lanes MIPI CSI-2| D-PHY 1.2 (up to 20 Gbps)
PCI Express	4 lanes PCIe Gen 2 1 x4	3 lanes PCIe Gen 2 1 x2, 1 x1	7 lanes PCIe Gen 3 1 x4, 3 x1	7 lanes PCIe Gen 3 1 x4, 3 x1
USB	1x USB 3.1 (5 Gbps)	1x USB 3.1 (5 Gbps)	3x USB 3.2 gen2 (10 Gbps)	3x USB 3.2 gen2 (10 Gbps)
Ethernet	1 Gbe via MDI	1 Gbe via MDI	1 Gbe via MDI	1 Gbe via MDI
Mechanical	69.6 mm x 45 mm 260-pin SO-DIMM connector	69.6 mm x 45 mm 260-pin SO-DIMM connector	69.6 mm x 45 mm 260-pin SO-DIMM connector**	69.6 mm x 45 mm 260-pin SO-DIMM connector**
Power	5W to 10W	7W to 15W	5W to 10W	7W to 15W



* Refers to both Jetson Xavier NX and Jetson Xavier NX 16GB
* * Refers to both Jetson AGX Xavier and Jetson AGX Xavier 64GB

source: NVIDIA

Application Scenarios

AI Camera for Retail & Factory

Autopilot Robots & Cars

Drones

Education & Training Tools

Medical & Biological Vision

AI for Smart Retail

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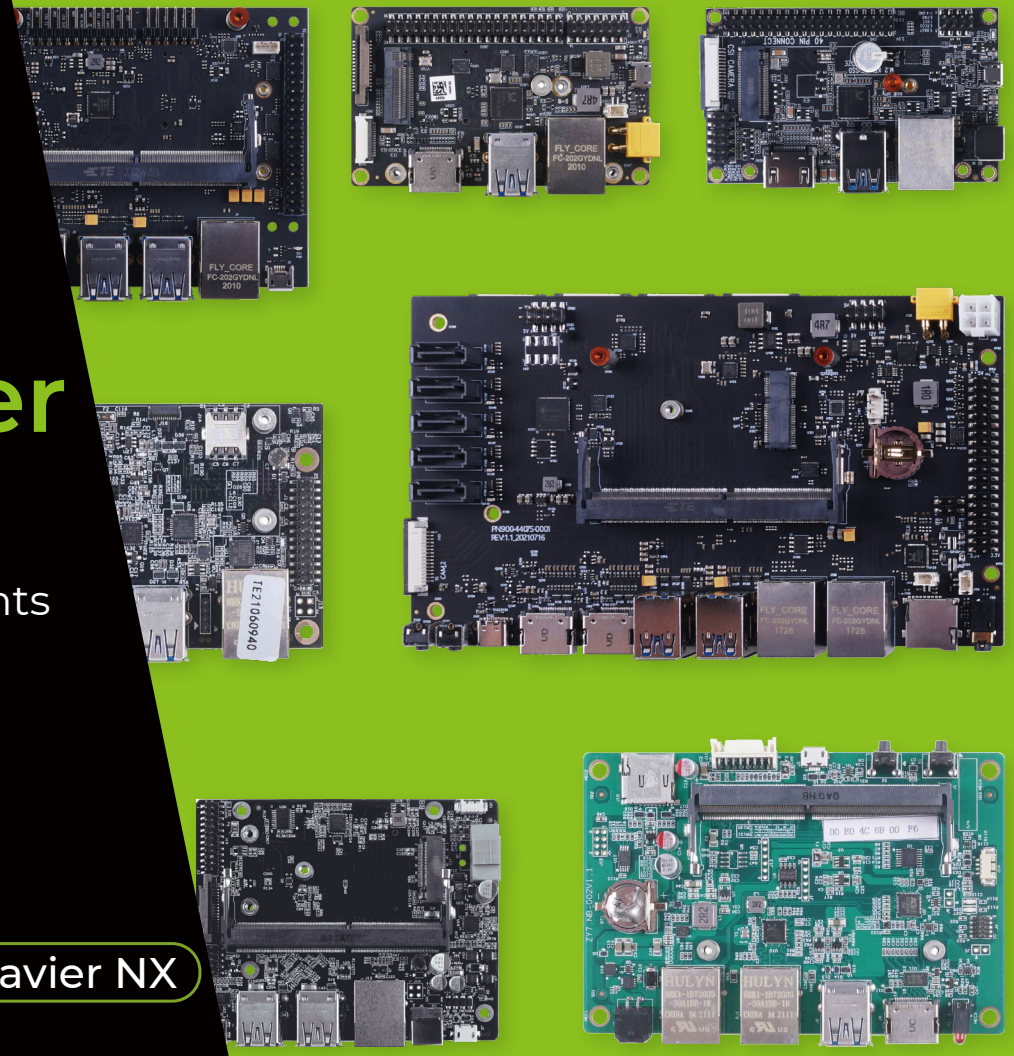
Meet Seeed Carrier Boards for Jetson

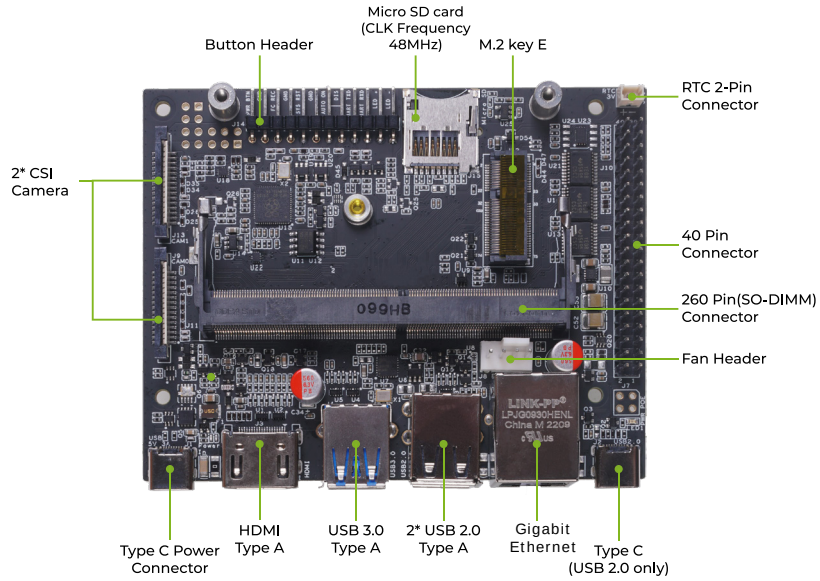
Designed For Endless Edge AI Deployments

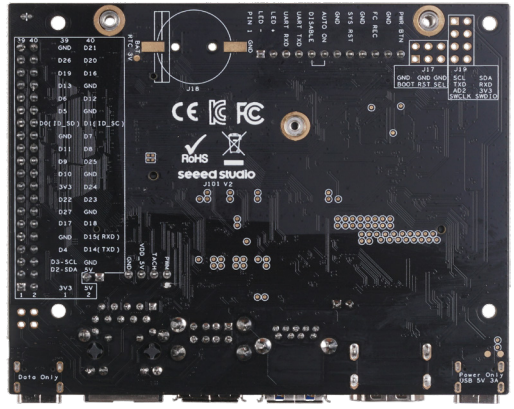


- Various Form Factors
- Rich I/Os
- Compatible with Orin Nano/Orin NX
- Compatible with Jetson Nano/TX2 NX/ Xavier NX

Carrier Boards

Product Name	reComputer J101 carrier
Dimensions	100mm*80mm
Module Compatibility	Jetson Nano
SKU	102991694
Certification*	RoHS CE FC UKCA REACH
Introduction	reComputer J101 is a cost-effective, high-performance, and interface-rich NVIDIA Jetson Nano compatible carrier board. It has nearly the **same functional design** and the same size as the **carrier board of NVIDIA® Jetson Nano™ developer kit**.

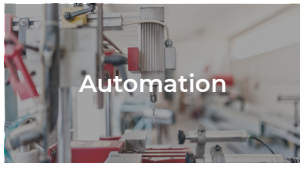


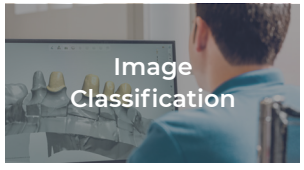


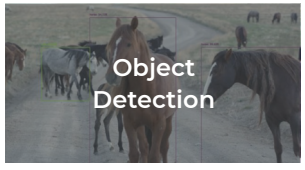
Features

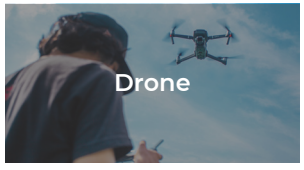
HDMI 2.0 | 3 USB Type A | Micro SD Card Slot | 2 CSI Camera Connectors | M.2 Key E | RTC

Applications





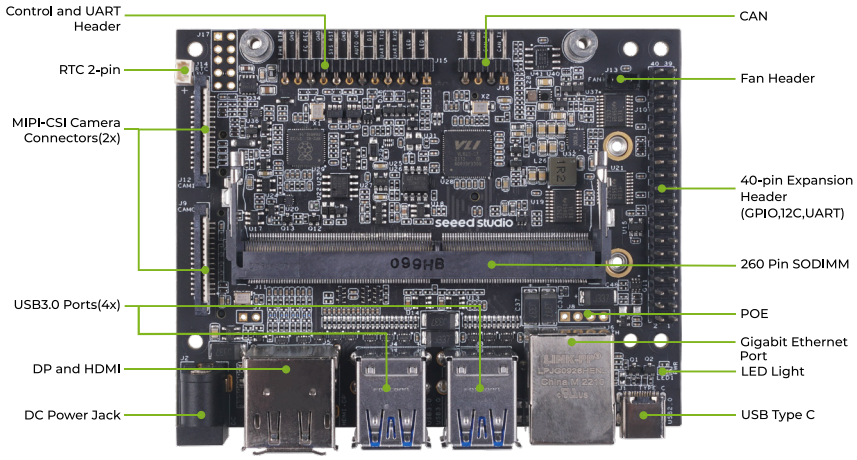


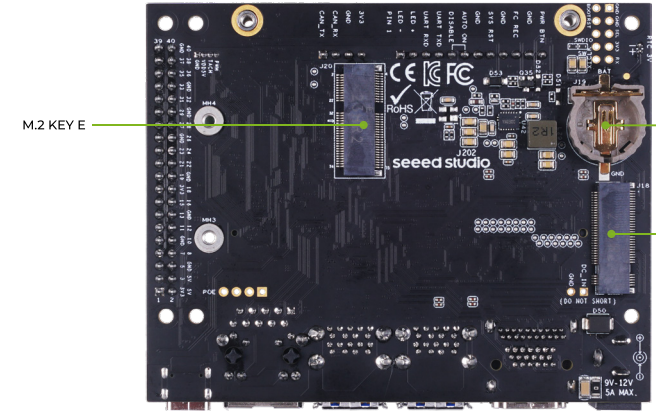


*Some of certification is on going

Carrier Boards

Product Name	reComputer J202 carrier board
Dimensions	100mm*80mm
Module Compatibility	- Jetson Nano - Jetson Xavier NX - Jetson TX2 NX
SKU	102991695
Japan Version	reComputer J202 (without power adapter) SKU 102991714
Certification*	RoHS CE FC UK CA REACH
Introduction	reComputer J202 is a high-performance, interface rich NVIDIA Jetson Nano/Xavier NX/TX2 NX compatible carrier board. It has the **same functional design and size** as the carrier board of **NVIDIA® Jetson Xavier™ NX developer kit**. There are minor differences between J202 and A206, and J202 is more cost-effective.

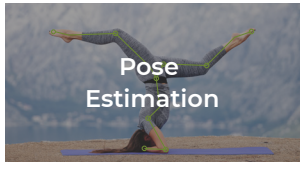


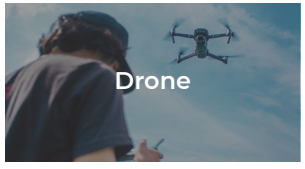


Features

4 USB Ports | 2 CSI Camera Connectors | 9V-16V | M.2 key E | M.2 key M | RTC | HDMI + DP ports

Applications

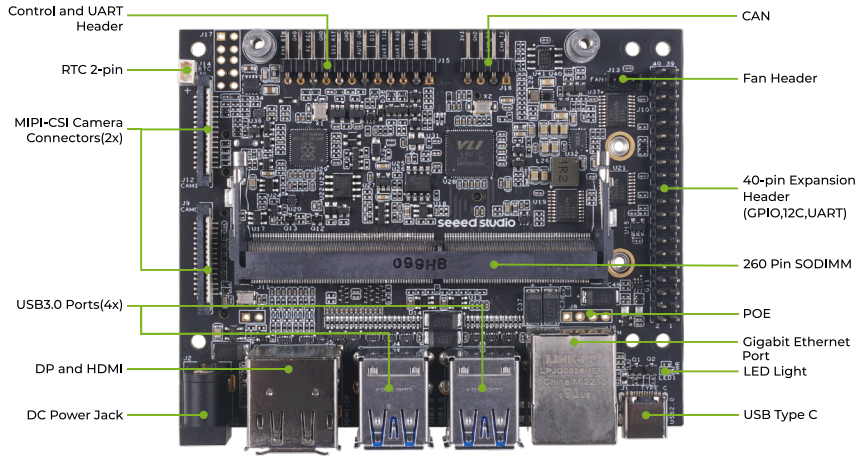


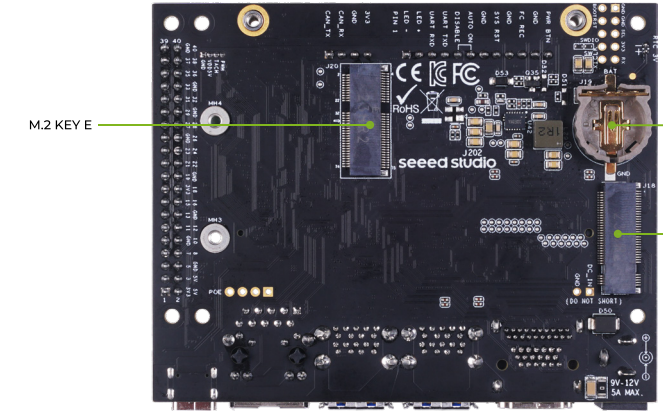


*Some of certification is on going

Carrier Boards

Product Name	reComputer J401 carrier board
Dimensions	100mm*80mm
Module Compatibility	- Jetson Orin Nano - Jetson Orin NX
SKU	102110769
Japan Version	reComputer J401 (without power adapter) SKU 102110769
Certification*	RoHS CE FC UKCA REACH
Introduction	reComputer J401 is a high-performance, interface rich NVIDIA Jetson Nano/Xavier NX/TX2 NX compatible carrier board. It has the **same functional design and size** as the carrier board of **NVIDIA® Jetson Xavier™ NX developer kit**.

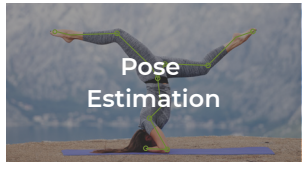




Features

4 USB Ports | 2 CSI Camera Connectors | 9V-16V | M.2 key E | M.2 key M | RTC | HDMI + DP ports

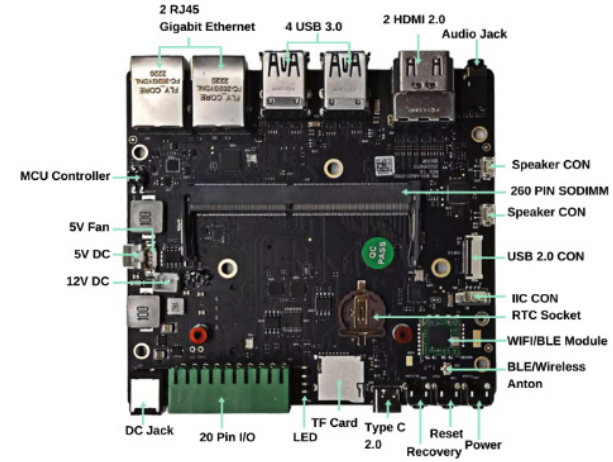
Applications

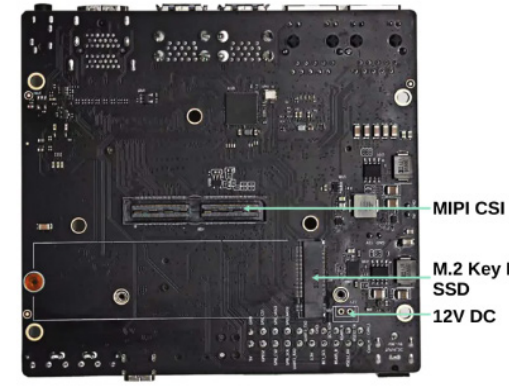


*Certification is on going

Carrier Boards

Product Name	A205E Carrier board
Dimensions	115mm x 105mm
Module Compatibility	- Jetson Nano - Jetson Xavier NX - Jetson TX2 NX
SKU	102110774
Certification*	RoHS CE FC
Introduction	Designing for industrial communication use, A205E provides RS232, RS485, and CAN interfaces, high-speed PCIe M.2 Key M(SSD), and M.2 Key E(WiFi). It also provides a rich set of I/Os including a micoSD card slot, HDMI, dual Gigabit Ethernet, 4x USB 3, USB2.0 Type C, SPI, I2C, GPIO, and a fan for different application needs. The board supports operate in the temperature range from -25°C to 80°C.





Features

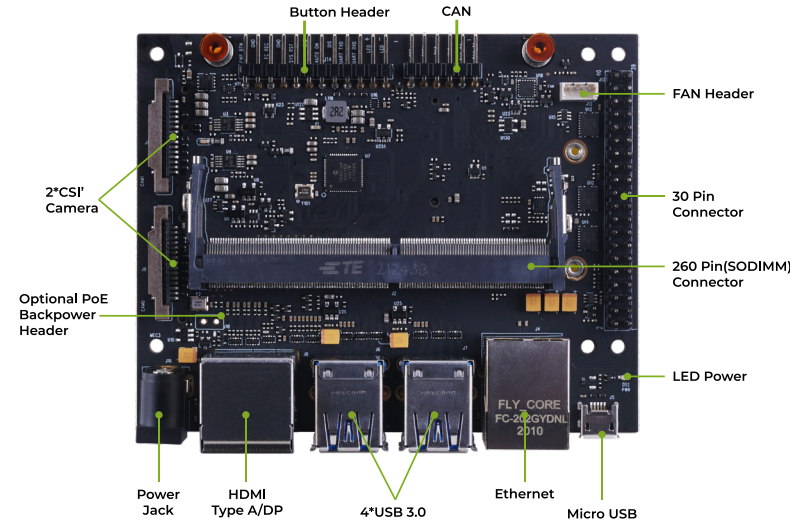
4x USB 3.0 | USB2.0 Type C | CAN | M.2 key E | M.2 key M | RS485 | RS232

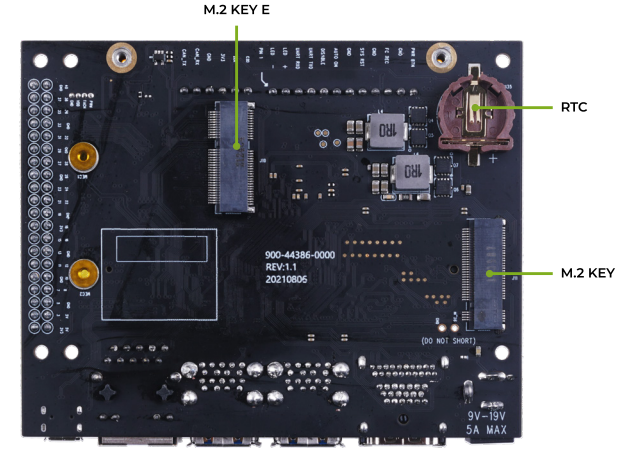
Applications

*Some of certification is on going

Carrier Boards

Product Name	A206 carrier board
Dimensions	100mm*80mm
Module Compatibility	- Jetson Nano - Jetson Xavier NX - Jetson TX2 NX
SKU	114110049
Certification	RoHS CE FC
Introduction	The same size/design/function as the **NVIDIA® Jetson Xavier™ NX carrier board**. Due to components shortage, we recommend the latest J202 carrier board as the alternative.

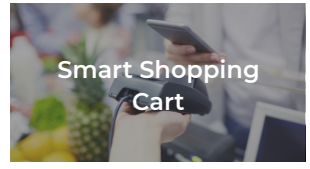


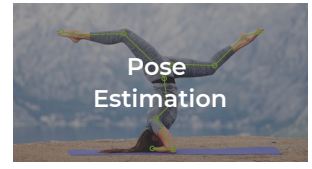


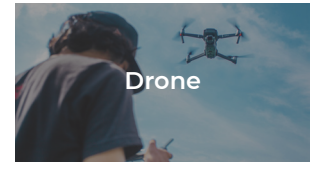
Features

4 USB Ports | HDMI + DP ports | RTC | M.2 E key | M.2 M key | 9V-19V

Applications

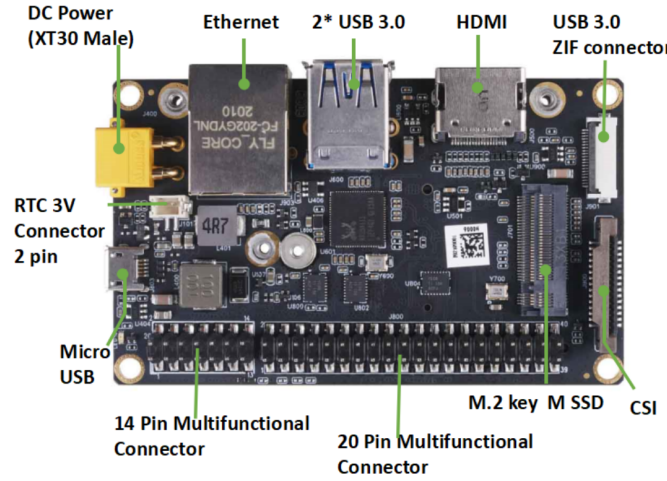


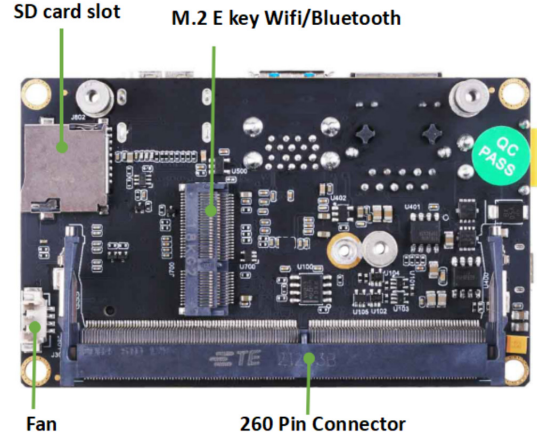




Carrier Boards

Product Name	A203 V2 carrier board
Dimensions	87mm*52mm
Module Compatibility	- Jetson Nano - Jetson Xavier NX - Jetson TX2 NX
SKU	103110043
Certification	RoHS CE FC
Introduction	It is a high-performance, interface rich Jetson Nano/Xavier NX/TX2 NX compatible carrier board. Compared with **Jetson Xavier NX carrier board**, it is **much smaller** and thus is suitable for small size AI graphical applications, such as smart-city IoT edge devices, home robots, UAVs, unmanned boats and unmanned submarines.

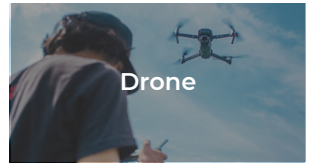


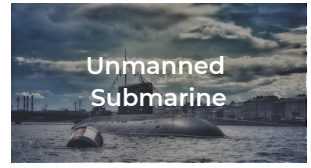


Features

Small and compact | 9V-19V | RTC | M.2 E key | SD card slot | USB 3.0 ZIF connector

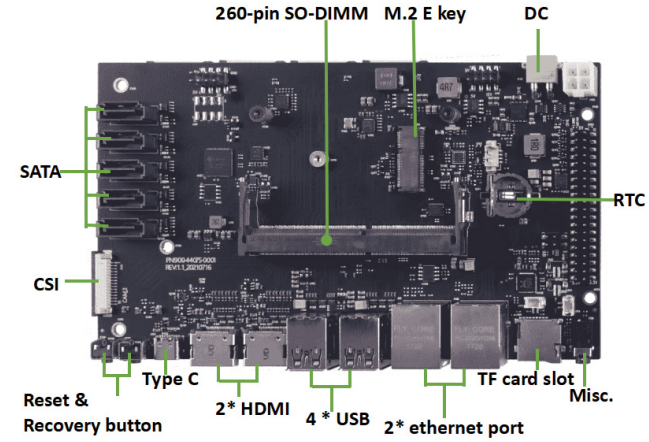
Applications

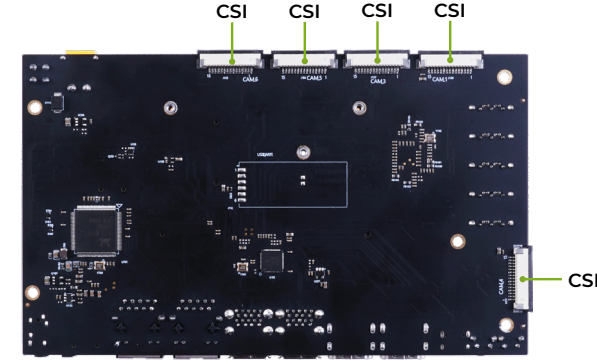




Carrier Boards

Product Name	A205 carrier board
Dimensions	170mm*100mm
Module Compatibility	- Jetson Nano - Jetson Xavier NX - Jetson TX2 NX
SKU	114110048
Certification	RoHS CE FC
Introduction	Bigger size compared with **Jetson Xavier NX carrier board**. Its rich SATA and multiple CSI Camera connectors make it suitable for complicated AI graphical applications, such as automated optical inspection, in video action, robot control, 3D modeling, drone, and parallel computing for computer vision.

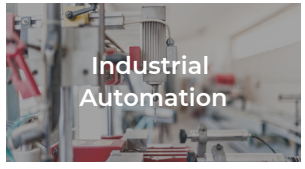


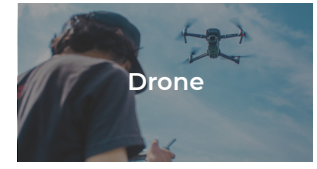


Features

5 SATA | 6 CSI | SD card slot | 2 HDMI | 2 Ethernet Ports

Applications





NVIDIA® Jetson Module Compatible Carrier Boards Comparison

							
Carrier board	**reComputer J101 carrier board for Jetson™ Nano**	**reComputer J202 carrier board for Jetson™ Nano/NX/TX2 NX**	**reComputer J401 carrier board for Jetson™ Orin NX/Orin Nano**	**A206 carrier board for Jetson™ Nano /NX/TX2 NX**	**A203 V2 carrier board for Jetson™ Nano/ NX/TX2 NX**	**A205 carrier board for Jetson™ Nano /NX/TX2 NX**	**A205E Carrier Board for Jetson™ Nano /Xavier NX TX2 NX**
Module Compatibility	NVIDIA® Jetson ™ Nano	NVIDIA® Jetson ™ Nano/ Xavier NX/TX2 NX	NVIDIA® Jetson ™ Orin NX /Orin Nano	NVIDIA® Jetson ™ Nano/ Xavier NX/TX2 NX	NVIDIA® Jetson ™ Nano/ Xavier NX/TX2 NX	NVIDIA® Jetson ™ Nano/ Xavier NX/TX2 NX	NVIDIA® Jetson™ Nano /Xavier NX/TX2 NX
PCB Size / Overall Size	100mm*80mm	100mm*80mm	100mm*80mm	100mm*80mm	87mm*52mm	170mm*100mm	115mm*105mm
Display	1*HDMI	1*HDMI+1*DP	1*DP	1*HDMI+1*DP	1*HDMI	2*HDMI	2*HDMI 2.0 (TYPE A)
CSI Camera	2*CSI	2*CSI	2*CSI	2*CSI	1*CSI	6*CSI	1*CSI
Networking	1*Gigabit Ethernet (10/100/1000M) 1*M.2 Key E (WiFi) (module not included)	1*Gigabit Ethernet (10/100/1000M) 1*M.2 Key E (WiFi) (module not included)	1*Gigabit Ethernet (10/100/1000M) 1*M.2 Key E (WiFi) (module not included)	1*Gigabit Ethernet (10/100/1000M) 1*M.2 Key E (WiFi) (module not included)	1*Gigabit Ethernet (10/100/1000M) 1*M.2 Key E (WiFi) (module not included)	2*Gigabit Ethernet (10/100/1000M) 1*M.2 Key E (WiFi) (module not included)	2*Gigabit Ethernet Connector (10/100/1000) 1*M.2 KEY E(WiFi) (module not included) 1*WiFi/ BLE module (4 pin interface)
USB	1*USB 3.0 Type-A 2*USB 2.0 Type-A 1*USB Type C(Not support power input)	4*USB 3.1 Type-A (Integrated USB 2.0) 1*USB Type C(Not support power input)	4*USB 3.2 Type-A (Integrated USB 2.0) 1*USB Type C(Not support power input)	4*USB 3.0 Type-A (Integrated USB 2.0) 1*USB Micro B(Not support power input)	1*USB 3.0 0.5mm pitch 20Pin ZIF 2*USB 3.0 Type-A (Integrated USB 2.0) 1*USB Micro B(Not support power input)	4*USB 3.0 Type-A (Integrated USB 2.0) 1*USB 2.0 Type C(Support OTG)	1x USB 2.0 ZIF 20P 0.5mm pitch 4x USB 3.0 Type A 1x USB 2.0 Type C
Storage Expansion	1* TF_Card (CLK Frequency 48Mhz)	1*M.2 Key M	1*M.2 Key M	1*M.2 Key M	1*M.2 Key M 1* TF_Card	5*SATA 1* TF_Card	1*M.2 KEY M (NVMe SSD) MicroSD card slot
Audio	/					1* Audio Jack 2* Microphone interface 2* Speaker interface	1*Audio Jack, 2*Speaker
SPI Bus	2* SPI Bus(+3.3V Level)	2* SPI Bus(+3.3V Level)	2* SPI Bus(+3.3V Level)	2* SPI Bus(+3.3V Level)	2* SPI Bus(+3.3V Level)	2* SPI Bus(+3.3V Level)	1*SPI Bus(+3.3V Level)
Fan Connector	1* Fan(5V PWM)	1* Fan(5V PWM)	1* Fan(5V PWM)	1* Fan(5V PWM)	1* Fan(5V PWM)	2* Fan(12V/5V) 1* Fan(5V PWM)	1 * FAN(5V PWM)
CAN	\	1* CAN	1* CAN	1* CAN	1* CAN	1* CAN	1* CAN
Multifunctional port	1* 40-Pin	1* 40-Pin	1* 40-Pin	1* 40-Pin	1* 40-Pin	1* 40-Pin	1* 40-Pin
RTC	Battery not included	Battery not included	Battery not included	Battery not included	Battery not included	Battery not included	Battery not included
Power supply	USB Type C 5V/3A (not include a power cord)	12V/5A power cord only	19V/4.74A power cord only	19V/4.74A power cord only	19V/4.74A power cord only	19V/4.74A power cord only	9V-36V DC
Operating Temperature	0°C～60°C	0°C～60°C	-10°C～70°C	-25°C～80°C	-25°C ~65°C	-25°C ~80°C	-25°C ~80°C

seeed studio

NVIDIA ELITE PARTNER

reComputer Series for Jetson

Hand-size Edge AI Device Built with NVIDIA Advanced AI Embedded Systems

- Same Dimension Carrier Board as Official Dev Kit
- Jetson Nano/Xavier NX/Orin NX
- Pre-installed Jetpack
- Production module

Microsoft Azure Certified Device

Module Embedded

- Jetson Nano
- Jetson Xavier NX 8GB/16GB
- Jetson Orin NX 8GB/16GB - coming soon

Introduction

reComputer series for Jetson are compact edge computers built with NVIDIA advanced AI embedded systems. With rich extension modules, industrial peripherals, and thermal management, reComputer for Jetson is ready to help users accelerate and scale the next-gen AI product by deploying popular DNN models and ML frameworks to the edge and inferencing with high performance.

Dimensions

130mm*120mm*50mm

Features

- Edge AI box with production module
- Pre-installed Jetpack
- Rich set of I/Os
- Stackable and expandable

Products Overview

Avaliable Version:

reComputer J1010
- Jetson Nano
- 1xUSB 3.0, 2x USB 2.0
- M.2 key E
- Micro SD Card (CLK Frequency 48MHz, Available after July 15th)

SKU: 110061362

Certification*:

reComputer J1020v2
- Jetson Nano
- 4xUSB 3.0
- M.2 key M

SKU: 110061441

Certification:

reComputer J2021
- Jetson Xavier NX 8GB
- 4xUSB 3.1
- M.2 key M, M.2 key E

SKU: 110061381

Certification:

reComputer J2022
- Jetson Xavier NX 16GB
- 4xUSB 3.1
- M.2 key M, M.2 key E

SKU: 110061402

Certification:

Discontinued

reComputer J1020
- Jetson Nano
- 4xUSB 3.0
- M.2 key M

SKU: 110061361

Certification:

reComputer J2011
- Jetson Xavier NX
- 4xUSB 3.0
- M.2 key M, M.2 key E

SKU: 110061363

Certification:

reComputer J2012
- Jetson Xavier NX 16GB
- 4xUSB 3.0
- M.2 key M, M.2 key E

SKU: 110061401

Certification:

Coming Soon:

reComputer J4011
- Jetson Orin NX 8GB
- 4x USB 3.2 Type-A; 1x USB2.0 Type-C(Recovery)
- M.2 key M, M.2 key E
- 128GB SSD

reComputer J4012
- Jetson Orin NX 16GB
- 4x USB 3.2 Type-A; 1x USB2.0 Type-C (Recovery)
- M.2 key M, M.2 key E
- 128GB SSD

reComputer J3010
- Jetson Orin Nano 4GB
- 4x USB 3.2 Type-A; 1x USB2.0 Type-C (Recovery)
- M.2 key M, M.2 key E
- 128GB SSD

reComputer J3011
- Jetson Orin Nano 8GB
- 4x USB 3.2 Type-A; 1x USB2.0 Type-C (Recovery)
- M.2 key M, M.2 key E
- 128GB SSD

Optional accessories:

- 128GB NVMe M.2 PCIe Gen3x4 2280 Internal SSD
- 256GB NVMe M.2 PCIe Gen3x4 2280 Internal SSD
- 512GB NVMe M.2 PCIe Gen3x4 2280 Internal SSD

*Certification is on going

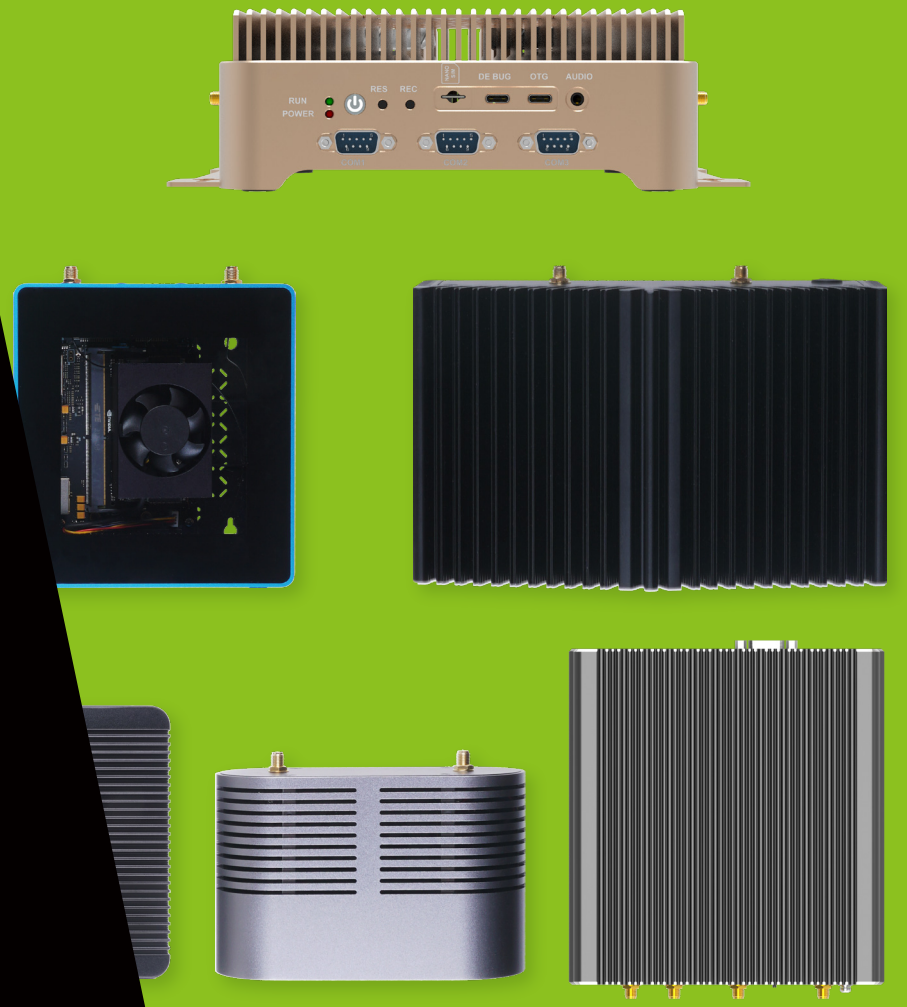
seeed studio

NVIDIA ELITE PARTNER

NVIDIA Module Embedded Mini PC for Various Edge Applications

Xavier NX/AGX Xavier Module | IIoT

Pre-installed Jetpack | AIoT



NEW

AGX Orin - Industrial

Product Name	Mini AI Computer T906
Module Embedded	Jetson AGX Orin 32GB
Dimensions	196.7mmx196mmx74mm
SKU	114110168
Introduction	Mini AI Computer T906 is powered by Jetson AGX Orin 32GB Module, delivers up to 200TOPS AI performance, and is equipped with two Ethernet ports for up to 10 Gbps networking. Supports Wi-Fi, Bluetooth, 4G/5G, and GPS enables hybrid fast network and navigation. The full system is ideal for building energy-efficient autonomous machines with the most advanced AI power, and industrial interfaces, and operating under excellent passive heat dissipation, two fans, along with IP55 lightweight aluminum alloy structure.

Features

Passive Cooling | M.2 Key E | M.2 Key M | Pre-installed JetPack 5.0.2 | 3xCAN | 3xRS-232 | 4xUSB3.0 | 10GbE | 1GbE

Applications

NEW

Jetson Xavier NX - Industrial

Product Name	Mini AI Computer T506S
Module Embedded	Jetson Xavier NX 8GB
Dimensions	155mm × 165mm × 52.5mm
SKU	114110167
Introduction	Mini AI Computer T506S is an edge AI platform, including 5x PoE Gigabit RJ45 ports, equipped with enhanced ability of video processing by Jetson Xavier NX 8GB, carrying 128GB SSD along with NVMe storage expandability, which represents an ideal solution for intelligent video analytics, traffic management, etc..

Features

Passive Cooling | 5x PoE Gigabit RJ45 | RS232/485 | Pre-installed JetPack 4.6 | 128GB SSD | 4xUSB3.0

Applications

NEW

Jetson Xavier NX - Industrial

Product Name	A205E Mini PC
Module Embedded	Jetson Xavier NX 8GB
Dimensions	209mm x 130mm x 66 mm
SKU	114110148
Introduction	Design for industrial use, A205E Mini PC combines exceptional AI performance, and sufficient storage with a rich set of IOs— HDMI, USBs, RS485, RS232, CAN, I2Cs, and SPIs for AI-embedded industrial and functional safety applications in a power-efficient, small form factor. The passive thermal design that can meet industrial standards such as anti-vibration and anti-static supports operating range from -25°C to 80°C.

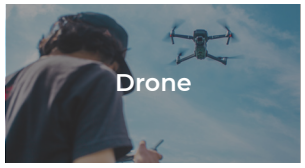
Features

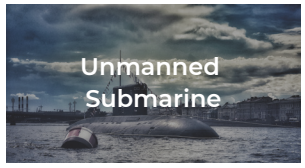
Passive Cooling | Aluminum case | RS232 | RS485

Pre-installed JetPack 5.0.2 | 128GB NVME SSD

WiFi/BLE | 2xHDMI | 4xUSB3.0 | 2xGbE

Applications





NEW

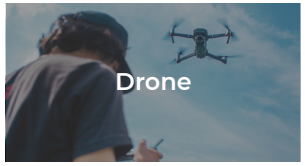
Jetson Xavier NX - Industrial

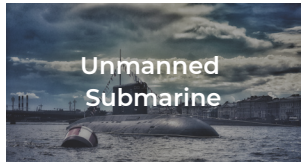
Product Name	A203 Mini PC
Module Embedded	Jetson Xavier NX 8GB
Dimensions	100mm x 50mm x 59mm
SKU	114110147
Introduction	A203 Mini PC is a powerful and extremely small intelligent edge computer to bring modern AI to the edge, the smaller form factor than the Jetson NX Developer Kit delivers the same AI power for up to 21 TOPs. For smart cities, security, industrial automation, smart factories, and other edge AI solution providers, A203 Industrial Mini PC combines exceptional AI performance, and sufficient storage with a rich set of IOs

Features

Ultra-small | Aluminum case | RS232 | 2xUSB3.0 | Pre-installed JetPack 5.0.2 | WiFi/BLE | 2xHDMI

Applications





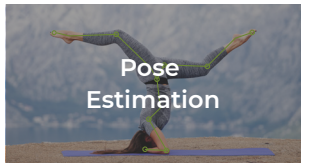
Jetson Xavier NX

Product Name	Jetson SUB Mini PC-Blue
Module Embedded	Jetson Xavier NX
Dimensions	130mm x 120mm x 50mm
SKU	102110637
Introduction	Consists of an NVIDIA® Jetson Xavier™ NX Module, a carrier board, a cooling fan, and a removable acrylic cover. Ideal for high-performance compute and AI in embedded and edge systems.

Features

- Xavier NX Module
- 128GB (M.2 key M) SSD
- Mounting hole design
- HDMI port + DP port
- Wi-Fi module and antenna
- 4 USB 3.1
- Removable acrylic cover
- NVIDIA JetPack software 4.6

Applications



Jetson Xavier NX

Product Name	Jetson SUB Mini PC-Black
Module Embedded	Jetson Xavier NX
Dimensions	205mm x 130mm x 65mm
SKU	102110641
Introduction	Consists of an NVIDIA® Jetson Xavier™ NX Module, a carrier board, and a fully sealing case with pre-installed OLED. Ideal for high-performance compute and AI in embedded and edge systems, especially in harsh environments.

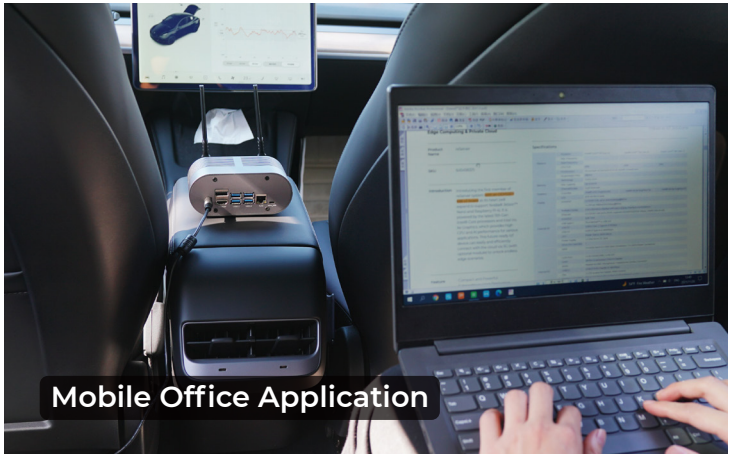
Features

- Xavier NX Module
- 2 HDMI ports
- 256 GB (2.5-inch SATA) SSD
- 4 USB 3.1 Type-A ports
- Wi-Fi module and antenna
- OLED screen
- Passive Cooling
- NVIDIA JetPack software 4.6

Applications

Jetson Xavier NX

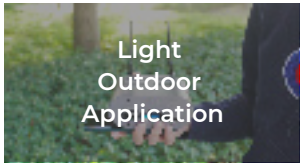
Product Name	Jetson SUB Mini PC-Silver
Module Embedded	Jetson Xavier NX
Dimensions	130mm x 90mm x 60mm
SKU	102110642
Introduction	Consists of an NVIDIA® Jetson Xavier™ NX Module, a carrier board, a quiet cooling fan, and a whole oval aluminum enclosure. Tiny and portable, ideal for high-performance compute and AI in embedded and edge systems in office/home or outdoor.



Features

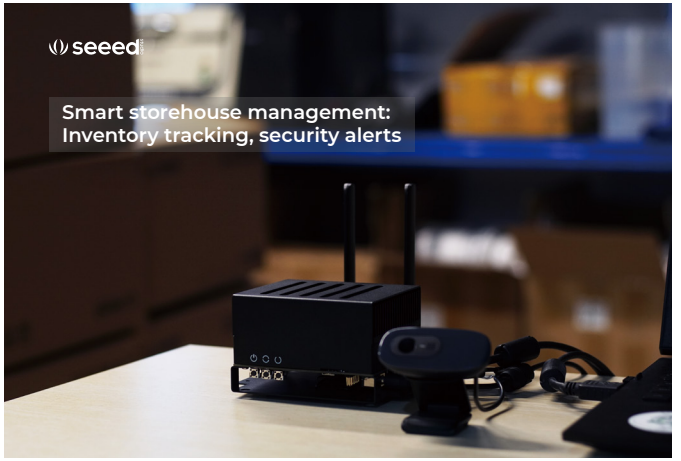
- Xavier NX Module
- Wi-Fi module and antenna
- 4 USB 3.1 Type-A ports
- HDMI port + DP port
- NVIDIA JetPack software 4.6
- 128GB (M.2 key M) SSD

Applications



Jetson Xavier NX

Product Name	Jetson AGX Xavier H01 Kit
Module Embedded	Jetson AGX Xavier 32GB
Dimensions	130mm x 105mm x 77mm
SKU	110991666
Introduction	Consists of an NVIDIA® Jetson AGX Xavier 32GB production version module, a carrier board, a cooling fan, and an aluminum case. Ideal for development and deployment of end-to-end AI robotics applications.



Features

- AGX Xavier 32GB Module
- 1 x HDMI 2.0 (TYPE A)
- TF Card Slot
- Pre-installed WiFi
- 2 x USB 3.0 Type A
- 1 x M.2 Key M (NVMe SSD)
- NVIDIA Jetpack software 4.6

Applications

seeed studio

NVIDIA ELITE PARTNER

reServer for Jetson

Inference center for the edge

- Local Intelligent Video Analytics
- Jetson Xavier NX 16GB
- 1 GbE
- Pre-installed Jetpack
- 2.5 GbE
- 2.5 inches 256GB SSD

reServer Jetson

- **Compact design:** Edge AI server with an overall dimension of 132mm*124mm*233mm
- **Powerful AI module:** NVIDIA® Jetson Xavier™ NX 16GB
- **Fast network access:** 2.5GbE port, 1GbE port x1
- **Hybrid connectivity:** Support 5G, 4G, LoRaWAN (modules not included)
- **Rich peripherals:** HDMI 2.0 x1, DP1.4 x1,USB3.1 GEN2 (up to 10Gbit) x2
- **Expandable storage:** Dual SATA III data connectors for 3.5”/2.5" SATA hard disk drives
- **Work as stable intelligent NVR system: pre-installed 2.5 inches 256GB SSD *1 and Jetpack, support entire Jetson software.**

Certification*

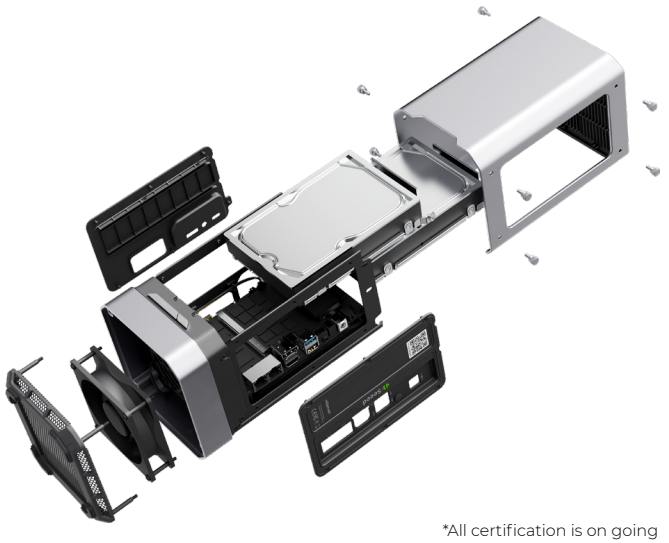
RoHS

reServer J2032

- Xavier NX 16GB Module
- Support 2 x 2.5"/3.5" SATA (HDD/SSD), up to SATA3

SKU: 110061403

- reServer for Orin NX(In development)



*All certification is on going

Jetson Nano full system comparison

Production Module	Jetson Nano		
			
Product Name	reComputer J1010	reComputer J1020 v2	NVIDIA® Jetson Nano Developer Kit-B01
SKU	110061362	110061441	102110417
AI Performance	472 GFLOPS		
GPU	NVIDIA Maxwel™ architecture with 128 NVIDIA CUDA® cores		
CPU	Quad-core Arm® Cortex®-A57 MPCore processor		
Memory	4 GB 64-bit LPDDR4, 1600MHz 25.6 GB/s		
Storage	16 GB eMMC 5.1	16 GB eMMC 5.1 1*M.2 Key M connector	microSD slot
Video Encode	1*4K30 | 2*1080p60 | 4*1080p30 | 4*720p60 | 9*720p30 (H.265/H.264)		1*4K30 | 4*1080p30 | 9*720p30 (H.264/H.265)
Video Decode	1*4K60 | 2*4K30 | 4*1080p60 | 8*1080p30 | 9*720p60 (H.265/H.264)		1*4K60 | 2*4K30 | 8*1080p30 | 18*720p30 (H.264/H.265)
Networking	1*RJ45 Gigabit Ethernet Connector (10/100/1000)		
USB	1*USB 3.0 Type A 2*USB 2.0 Type A 1*USB Type-C for device mode 1*USB Type-C for 5V power input	4*USB 3.0 Type-A 1*USB Type-C for device mode	4*USB 3.0 Type-A 1*USB 2.0 Micro-B for device mode
CSI Camera	2*CSI camera connectors (15 pos, 1mm pitch, MIPI CSI-2)		
Display	1*HDMI 2.0 Type A	1*HDMI 2.0 Type A 1*DP	1*HDMI 2.0 Type A 1*DP
Fan	1*Fan Connector(5V PWM)		
M.2 Key E	1*M.2 Key E connector to support WiFi/BT	1*M.2 Key E (disabled)	1*M.2 Key E connector to support WiFi/BT
Multifunctional header	1*40-Pin header (GPIO, I2C, I2S, SPI, UART)		
Power Adapter	USB Type-C 5V/3A	DC Barrel Jack 12V/2A	DC Barrel Jack 5V/4A Micro-USB 5V/2A
Power	5W | 10W		
Dimensions	130mmx120mmx50mm (with case)	130mmx120mmx50mm (with case)	100mmx80mmx29mm

Jetson Xavier NX full system comparison

Production Module	Jetson Xavier NX					
						
Product Name	reComputer J2021	reComputer J2022	NVIDIA® Jetson Xavier NX Developer Kit	reServer J2032	Jetson Sub Blue	Jetson Sub Silver
SKU	110061381	110061402	102110427	110061403	102110637	102110642
Built-in carrier board	J202	J202	NVIDIA® Jetson Xavier NX reference carrier board	Carrier board for J2032	A206	A206
AI Performance	21 TOPS					
GPU	384-core NVIDIA Volta™ GPU with 48 Tensor Cores					
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU, 6MB L2 + 4MB L3					
Memory	8 GB 128-bit LPDDR4x 59.7GB/s	16 GB 128-bit LPDDR4x 59.7GB/s	8 GB 128-bit LPDDR4x 51.2GB/s	16 GB 128-bit LPDDR4x 59.7GB/s	8 GB 128-bit LPDDR4x 59.7GB/s	
Storage	16 GB eMMC 5.1 1*M.2 Key M connector		microSD slot 1*M.2 Key M connector	16 GB eMMC 5.1 256GB SATA III SSD 2* SATA III data connectors 2* SATA III power connectors	16 GB eMMC 5.1 128GB M.2 NVMe SSD	
Video Encode	2*4K60 | 4*4K30 | 10*1080p60 | 22*1080p30 (H.265) 2*4K60 | 4*4K30 | 10*1080p60 | 20*108p30 (H.264)					
Video Decode	2*8K30 | 6*4K60 | 12*4K30 | 22*1080p60 | 44*1080p30 (H.265) 2*4K60 | 6*4K30 | 10*1080p60 | 22*1080p30 (H.264)					
Networking	1*RJ45 Gigabit Ethernet Connector (10/100/1000)			1*RJ45 GbE; 1*RJ45 2.5GbE 1*M.2 Key B connector to support 5G/4G 1*Mini PCIe connector to support LoRa/Series wireless ; 1*Sim card slot	1*RJ45 Gigabit Ethernet Connector (10/100/1000)	
USB	4*USB 3.1 Type A Connector 1*USB Type-C for device mode		4*USB 3.1 Type A Connector 1*USB 2.0 Micro-B for device mode	2*USB 3.1 Gen 2 Type A connector 1*USB Type-C for device mode 1*USB Type-C for RP2040 Coprocessor	4*USB3.0 (USB 2.0 Integrated) 1*USB 2.0 Micro-B for device mode	
CSI Camera	2*CSI camera connectors (15 pos, 1mm pitch, MIPI CSI-2)			-	2*CSI camera connectors (15 pos, 1mm pitch, MIPI CSI-2)	
Display	1*HDMI 2.0 Type A 1*DP			1*HDMI 2.0 Type A 1*DP1.4	1*HDMI 2.0 Type A 1*DP	
Fan	1* Fan (5V PWM)			1*Jetson Xavier NX Fan (5V PWM) 1* Main Fan (12V)	1* Fan (5V PWM)	
M.2 Key E	1*M.2 Key E connector to support WiFi/BT		1*M.2 Key E connector to support WiFi/BT(module included)	-	1*M.2 Key E connector to support WiFi/BT (module included)	
Multifunctional header	1*40-Pin header (GPIO, I2C, I2S, SPI, UART)			-	1*40-Pin header (GPIO, I2C, I2S, SPI, UART)	
Power Adapter	DC Barrel Jack 12V/5A (5.5/2.1mm)		DC Barrel Jack 19V 4.74A (MAX 90W)	DC Barrel Jack 12V @5A	DC Barrel Jack 19V 4.74A (MAX 90W)	
Dimensions	130mmx120mmx50mm (with case)		103mmx90.5mmx31mm	132mmx124mmx233mm (with case)	130mm x120mm x 50mm (with case)	130mm x90mm x60mm (with case)

Jetson Xavier NX full system comparison

Production Module	Jetson Xavier NX			
				
Product Name	A203	A205 E	T506S	Jetson Sub Black
SKU	114110147	114110148	114110167	102110641
AI Performance	21 TOPS			
GPU	384-core NVIDIA Volta™ GPU with 48 Tensor Cores			
CPU	6-core NVIDIA Carmel ARM®v8.2 64-bit CPU, 6MB L2 + 4MB L3			
Networking	1*RJ45 GbE (10/100/1000) 1*Sim card slot	1*RJ45 GbE (10/100/1000) 1*WiFi/ BLE module	4*PoE(PSE) GbE Ports 1*PoE(PD) GbE Port	2*RJ45 GbE (10/100/1000) 1*WiFi module
Memory	8 GB 128-bit LPDDR4x 59.7GB/s			
USB	2*USB3.0 Type A 1*USB 2.0 Micro-B for device mode	4*USB 3.0 Type A 1*USB 2.0 Type C for device mode	4*USB 3.0 Type A 1*USB 2.0 Micro-B (OTG) for device mode	4*USB 3.0 Type-A (Integrated USB 2.0) 1*USB 2.0 Micro-B (OTG) for device mode
Camera	1*CSI camera connector (15 pos, 1mm pitch, MIPI CSI-2)	MIPI connector compatible with MIPI CSI and GMSL	-	6*camera connectors (15 pos, 1mm pitch, MIPI CSI-2)
Display	1*HDMI 2.0 Type A	2*HDMI 2.0 Type A	1*HDMI 2.0 Type A	2*HDMI 2.0 Type A
M.2 Key E	1*M.2 Key E connector to support WiFi/BT (module included)	-	1*M.2 Key E connector to support 5G	1*M.2 Key E connector
mini PCIe	/	/	1*Mini PCIe connector to support 4G	/
IO	1*RS232, 1*CAN, 2*SPI, 2*I2C Link(+3.3V I/O), 5*GPIO, 1*I2S(3.3V Level)	1*RS485, 1*RS232, 1*CAN, 1*SPI Bus(+3.3V Level), 2*I2C Link(+3.3V I/O), 1*GPIO	1*RS485, 1*RS232, 1*CAN 2.0b, 1*I2C, 4*GPIO	1*UART, 1*CAN, 2*SPI Bus(+3.3V Level), ` 2*I2C Link(+3.3V I/O), 2*GPIO
Multifunctional header	1*40-Pin header (GPIO, I2C, I2S, SPI, UART)	/	/	1*40-Pin header (GPIO, I2C, I2S, SPI, UART, CAN)
FAN	1* Fan (5V PWM)	Fanless, passive heatsink	Fanless, passive heatsink	Fanless, passive heatsink
Power Input	9V - 19V DC	9V - 36V DC	12-36V DC	13-20V DC
Power Adapter	DC 19V 4.74A (MAX 90W)	DC Jack 19V 4.74A (MAX 90W)	DC Jack 19V 3.42A	DC Jack 19V 4.74A (MAX 90W)
Dimensions	100mm x 50mm x 59mm (with case)`	209mm x 130mm x 66 mm (with case)	155mm × 165mm × 52.5mm (with case)	205mm x 130mm x 65mm (with case)
Operating temperature	-20℃~ 80℃, 0.2~0.3m/s air flow	-20℃~ 65℃, 0.2 ~ 0.3m/s air flow	-20°C ~ 65°C	-25°C ~ +80°C
Operating System	Pre-installed JetPack 5.0.2	Pre-installed JetPack 5.0.2	Pre-installed JetPack 4.6	Pre-installed JetPack 4.6

Jetson AGX Xavier full system comparison

Production Module	Jetson AGX Xavier	
		
Product Name	Jetson AGX Xavier H01 Kit	NVIDIA® Jetson AGX Xavier Dev Kit
SKU	110991666	102110417
AI Performance	32 TOPS	
GPU	NVIDIA Volta™ architecture with 512 NVIDIA® CUDA® cores and 64 Tensor cores	
CPU	8-core NVIDIA Carmel Arm®v8.2 64-bit CPU 8MB L2 + 4MB L3	
Memory	32 GB 256-bit LPDDR4x 136.5GB/s	
Storage	32 GB eMMC 5.1 SD/UFS and microSD card slot; 1*M.2 Key M connector	32 GB eMMC 5.1; microSD card slot eSATA port; 1*M.2 Key M connector
Video Encode	4*4K60 | 8*4K30 | 16*1080p60 | 32*1080p30 (H.265) 30*1080p30 (H.264)	2*4K60 |HEVC/(2x) 4K60 | 12-Bit Support
Video Decode	2*8K30 | 6*4K60 | 12*4K30 | 26*1080p60 | 52*1080p30 (H.265) 30*1080p30 (H.264)	2*4K60 |HEVC/(2x) 4K60 | 12-Bit Support
Networking	1*RJ45 Gigabit Ethernet Connector (10/100/1000)	
USB	2*USB 3.0 Type-A; 1*USB 2.0 Type-C for device mode	1*USB 3.1 Type-A; 1*USB Type-C for device mode/ debug; 1*USB Type-C; 1*USB 2.0 Micro-B for debug
Camera	Camera connector(Compatible with MIPI CSI and GMSL)	
Display	1 x HDMI 2.0 Type A	
Fan	1*12V Fan	
M.2 Key E	1*M.2 Key E connector	
PCIe	PCIe X16 (x8 PCIe Gen4/x8 SLVS-EC)	
Multifunctional header	1*40-Pin header	
Power Adapter	DC Jack 19V 4.74A (MAX 90W)	
Power	10W | 15W | 30W	
Dimensions	130mmx105mmx77mm (with case)	105mmx105mmx65mm

Jetson Orin full system comparison

Production Module	Jetson Orin Nano		Jetson Orin NX		Jetson AGX Orin	Jetson AGX Orin
						
Product Name	reComputer J3010	reComputer J3011	reComputer J4011	reComputer J4012	Mini AI Computer T906	NVIDIA® AGX Orin Dev Kit
SKU	110110146	110110147	110110144	110110145	114110168	110991725
Module	Jetson Orin Nano 4GB	Jetson Orin Nano 8GB	Jetson Orin NX 8GB	Jetson Orin NX 16GB	Jetson AGX Orin 32GB	Jetson AGX Orin 32GB
AI Performance	20 TOPS	40 TOPS	70 TOPS	100 TOPS	200 TOPS	275 TOPS
GPU	512-core NVIDIA Ampere architecture GPU with 16 Tensor Cores	1024-core NVIDIA Ampere architecture GPU with 32 Tensor Cores	NVIDIA Ampere architecture with 1024 NVIDIA® CUDA® cores and 32 tensor cores		1792-core NVIDIA Ampere architecture GPU with 56 Tensor Cores	NVIDIA Ampere architecture with 2048 NVIDIA® CUDA® cores and 64 TensorCores
CPU	6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3; 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3		6-core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3	12-core Arm® Cortex®-A78AE v8.2 64- bit CPU 3MB L2 + 6MB L3
Memory	4GB 64-bit LPDDR5 34 GB/s	8GB 128-bit LPDDR5 68 GB/s	8GB 128-bit LPDDR5 102.4 GB/s	16GB 128-bit LPDDR5 102.4 GB/s	32GB 256-bit LPDDR5 204.8GB/s	32GB 256-bit LPDDR5 204.8GB/s
Storage	Supports external NVMe 1*M.2 Key M (128GB NVMe SSD included)				64GB eMMC 5.1 1*M.2 Key M connector	64GB eMMC 5.1; microSD card slot 2*M.2 Key M connector
Video Encode	1080p30 supported by 1-2 CPU cores		1*4K60 | 3*4K30 | 6*1080p60 | 12*1080p30 (H.265) H.264, H.265, AV1		1*4K60 | 3*4K30 | 6*1080p60 | 12*1080p30 (H.265)	2x 4K60 | 4x 4K30 | 8x 1080p60 | 16x 1080p30 (H.265)
Video Decode	1x 4K60 | 2x 4K30 | 5x 1080p60 | 11x 1080p30 (H.265)		1*8K30 | 2*4K60 | 4*4K30 | 9*1080p60 | 18*1080p30 (H.265) H.264, H.265, VP9, AV1		1*8K30 | 2*4K60 | 4*4K30 | 9*1080p60 | 18*1080p30 (H.265) H.264, H.265, VP9, AV1	1x 8K30 | 3x 4K60 | 7x 4K30 | 11x 1080p60| 22x 1080p30 (H.265) H.264, VP9, AV1
Networking	1*RJ45 Gigabit Ethernet Connector (10/100/1000)				1*RJ45 GbE (10/100/1000) 1*RJ45 10GbE 1*M.2 Key B connector for WiFi 1*Sim card slot; 1*GPS module	1*RJ45 10GbE
USB	4*USB 3.2 Type-A 1*USB Type C for device mode		4*USB 3.2 Type-A 1*USB Type C for device mode		4*USB 3.0 Type A 1*USB 2.0 Type-C for device mode 1*USB 2.0 Type-C for debug	4*USB 3.2 Type A 2*USB 3.2 Type C 1*USB 2.0 Micro B for debug
Camera	2*CSI Cameras (15 pos, 1mm pitch, MIPI CSI-2)		2*CSI Cameras (15 pos, 1mm pitch, MIPI CSI-2)		GMSL 2 camera connector (compatible with GMSL1)	Camera Connector (2x60, 0.5mm pitch)
Display	1*HDMI		1*HDMI		1*HDMI 2.0 Type-A	1*DP 1.4a
Fan	1* Fan(5V PWM) (Fan included)		1* Fan(5V PWM) (Fan included)		2* Fan(5V PWM)	1* Fan(5V PWM) (Fan included)
M.2 Key E	1*M.2 Key E		1*M.2 Key E		1*M.2 Key E	1*M.2 Key E(WiFi/BT included)
Mini PCIe	/		/		1*Mini PCIe connector for 4G	/
Multifunctional header / IO	1*40-Pin header		1*40-Pin header		3*CAN (with CAN chip) 2*GPIO 2*RS-232 D-SUB9 1*RS232 for time sync	1*40-Pin header 12-pin automation header 10-pin audio panel header 10-pin JTAG header233mm
Power	5W - 10W	7W - 15W	10W - 20W	10W - 25W	15W - 40W	15W | 30W | 60W
Power Adapter	DC Jack 12V 5A		DC Jack 19V 4.74A (MAX 90W)		DC Jack 19V 4.74A	DC Jack 24V
Dimensions	130mmx120mmx50mm (with case)				196.7mmx196mmx74mm	132mmx124mmx233mm

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NVIDIA ELITE PARTNER

NVIDIA Jetson Compatible Accessories

Heatsink, Case, Camera, and RPLiDAR

Accessory - Heatsink

Product Name	NVIDIA Jetson module compatible aluminum heatsink

Introduction

If you're designing any kind of computing application with the NVIDIA Jetson modules, you seriously can't do without a heatsink if you want to avoid overheating problems.

Seeed's aluminum heatsinks for NVIDIA Jetson Modules are an essential piece of equipment for keeping modules cool, improving both computing performance and reliability under heavy workloads to realize their true potential. Some of them consist of a fan to ensure cooling effect.

Aluminum Heatsink for Jetson Nano Module

SKU 114992686

Jetson Nano Module Active Heat Sink

SKU 101110061

Aluminum Heatsink with Fan for Jetson Xavier NX Module

SKU 114992687

Aluminum Heatsink with bigger Fan for Jetson Xavier NX Module with Long Cable

SKU 114992746

Aluminum Heatsink with Fan for Jetson TX2 NX Module

SKU 114992731

Accessory - Case

Product Name	Case for NVIDIA Jetson modules
Introduction	Case/enclosure can provide ultimate protection to your Jetson modules. For those listed on the LEFT, they all have an internal cooling fan to ensure better heat dissipation when your Jetson modules are working on multiple demanding tasks. For those listed on the RIGHT,they are compatible with all popular SBCs (including ODYSSEY - X86J4105, Raspberry Pi, BeagleBone and Jetson Nano/Xavier NX), and they are with a removable acrylic cover on the top and with a stackable structure to extend endless possibilities.

Case with Fan

Jetson Nano Metal Case/Enclosure - with Cooling Fan and Camera Holder

SKU 110991384

Jetson Nano Metal Armour - Case with PWM Adjustment Fan

SKU 110061132

Aluminum Case for NVIDIA Jetson Nano

SKU 114992052

Case without Fan

re_computer case

SKU 114992152

re_computer case silver version

SKU 110991405

re_computer case(Silver Metal Edition)

SKU 110991484

Accessory – Camera

Product Name	NVIDIA Jetson module compatible camera
Introduction	By using one of these cameras, combined with a Jetson Nano/ Xavier NX Development Kits, you can simply realize machine vision projects. Also, you can experience better quality video capture from these cameras and build more demanding projects. Some of them also has two IR LEDs to enable night vision capabilities.

High Quality Camera for Raspberry Pi CM3/ CM3 Lite/ CM3+/ CM3+ Lite & Jetson Nano with 12.3MP IMX477 Sensor

SKU 114992442

IMX219-200 8MP Camera with 200° FOV

SKU 114992265

IMX219-77IR 8MP IR Night Vision Camera with 77° FOV

SKU 114992261

IMX219-77 8MP Camera with 77° FOV

SKU 114992260

IMX219-160 8MP Camera with 160° FOV

SKU 114992263

IMX219-130 8MP Camera with 130° FOV

SKU 114992262

IMX219-83 8MP 3D Stereo Camera Module

SKU 114992270

IMX219-160IR 8MP Camera with 160° FOV

SKU 114992264

Camera with SKU 114992442 is only supported by Jetson Nano.
All other cameras are supported by both Jetson Nano/ Xavier NX

Accessory – Camera

Product Name	e-con Systems cameras compatible with Seeed Jetson carrier boards

Introduction

e-con Systems is an elite partner of NVIDIA and has been working with multiple NVIDIA solution providers to offer our customers complete vision solutions. In this pursuit, we have joined hands with Seeed Studio - an IoT hardware enabler that aims to be the most integrated platform for global creative technologists to turn ideas into products.

Some of the key features of e-con's cameras that can be evaluated with Seeed's carrier boards include high resolution (up to 13MP), global shutter & rolling shutter, low noise, excellent low light performance, and superior NIR sensitivity. By using the combination of e-con cameras and Seeed's carrier boards, product developers can reduce prototyping time and time to market by up to 40%.

e-CAM131_CUNX -
4K Camera for NVIDIA® Jetson Xavier™ NX/NVIDIA® Jetson Nano™

e-CAM81_CUNX -
4K HDR Camera for NVIDIA® Jetson Xavier™ NX / TX2 NX / Nano

e-CAM80_CUNX -
Sony 4K Camera for NVIDIA® Jetson Xavier™ NX/Nano

e-CAM50_CUNX -
5.0 MP NVIDIA® Jetson Xavier™ NX/NVIDIA® Jetson Nano™ Camera

e-CAM24_CUNX -
Color Global shutter Camera for,NVIDIA® Jetson Xavier™ NX / TX2 NX / Nano

Learn more at e-con Systems: www.e-consystems.com/seedstudio-cameras.asp

Accessory – RPLiDAR

Product Name	RPLiDAR – Laser Ranging Radar

Introduction

A low-cost two-dimensional laser ranging radar (LIDAR) can perform a 360-degree omni-directional laser ranging scan within certain radius of a two-dimensional plane, and thus can generate a flat point cloud map of the space in which it is located information.
These cloud map information can be used in practical applications such as mapping, robot positioning and navigation, and object/environment modeling.

RPLiDAR A1M8-R6 360 Degree Laser Scanner Kit - 12M Range

SKU 114992561

RPLiDAR A2M8 360 Degree Laser Scanner Kit - 12M Range

SKU 110991066

RPLiDAR A3M1 360 Degree Laser Scanner Kit - 25M Range

SKU 110991068

RPLiDAR S1 Portable ToF Laser Scanner Kit - 40M Range

SKU 114090021

RPLiDAR A2M12 360 Degree Laser Scanner Kit - 12M Range

SKU 114110128

Slamtec Mapper M1M1 ToF Laser Scanner Kit - 20M Range

SKU 114991984

RPLiDAR A2M6 360 Degree Laser Scanner Kit - 18M Range

SKU 110991067

RPLiDAR S2 Low Cost 360 Degree Laser Range Scanner - 30M Range

SKU 114992738

Slamtec Mapper M2M1 Pro - LiDAR Mapping Sensor(Industrial Grade) - 40M Range

SKU 101990641

Accessory – LiDAR & Camera

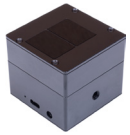
Product Name	LiDAR & Camera
Introduction	These sensors adopt ToF method to measure distance. Some of them when combined with a modulated light source, are capable of measuring distance and reflectivity with VGA resolution.

TFmini S LiDAR module - Short- Range ToF LIDAR Range Finder

SKU 101990620

DepthEye S2 -H67°x V51° VGA Camera with Sony IMX556PLR DepthSense

SKU 101990866



DepthEye Wide - H100° x V75° VGA ToF Camera with Sony IMX556PLR DepthSense™

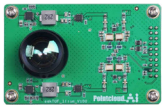
SKU 114992563

DepthEye Turbo - VGA ToF with Sony IMX556PLR DepthSense

SKU 114991967

OakSense H60Q-QVGA resolution ToF camera

SKU 114992757



OakSense H67V-VGA resolution TOF camera supported C++ and Python

SKU 114992753

CUSTOMIZATION SERVICE

For Jetson product line specifically, Seeed offers customization service based on our existing carrier boards including - J101, J202, and J401 services ranging from interfaces modification to certification.

In addition, we are open to hear your new Jetson-based product development idea.

If you cannot find the off-the-shelf hardware solution for your needs, Seeed's in-house R & D engineer team with over a decade of experience in SBCs and industrial computing can design for your specific application demands.

You can contact our service team at **produce@seeed.cc** or visit **our ODM/OEM service page** to know more if interested. Our account manager will contact you soon and help to outline your tailored requirements.

Hardware Customization

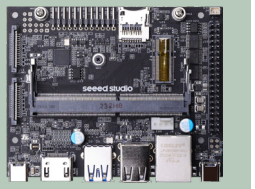
We provide customization services based on NVIDIA Jetson. You can customize based on our listed standard products or submit your new product development inquiry to us.

NVIDIA® Jetson Custom Design Request

Product Customization based on Following Existing Carrier Boards **MOQ: 300+pcs, NRE Fee Reference: $25k+**

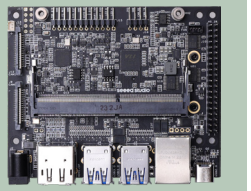
J101

J101 is a cost-effective, high-performance, interface rich NVIDIA Jetson Nano compatible carrier board. It has nearly the same functional design and exact the same size as the carrier board of NVIDIA® Jetson Nano™ 2GB DEVELOPER KIT.



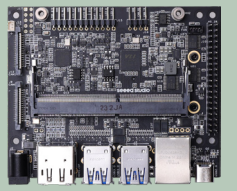
J202

J202 is a high-performance, interface rich NVIDIA Jetson Nano / Xavier NX/ TX2 NX compatible carrier board. It has the same functional design and size as the carrier board of NVIDIA® Jetson Xavier™ NX DEVELOPER KIT.



J401

J401 carrier board works with Jetson Orin NX and Orin Nano. It brings a rich set of I/Os to extend functionality: 2x CSI, 1x M.2 Key M, 1x M.2 Key E, 4x USB 3.2, 1x USB 2, HDMI, CAN, RTC and 40-pin GPIO.



Customization Process & Timeline

EVT Engineering Verification Test

4 - 6 Weeks

Product Design

Hardware Software

Mechanical Packging

Design for Manufacturing

Design for Testing

Quotation

1 - 1.5 Weeks

- Product Requirements Document
- SoW(Statement of Works)
- Contract Agreement
- Quotation

Kickoff

0.5 - 1 Weeks

Initial Project Schedule

Project Development Plan

DVT Design Verification Test

3 - 4 Weeks

Building Samples

Test Plan

Debug & Test

- Functionality Test
- Regulatory Test
- Reliability Test

PVT Pilot Verification Test

4 - 6 Weeks

Pilot Manufacturing

Quality Control

Certification

Mass Production

4 - 6 Weeks

Procurement

Productiuon Management Conrol

Manufacturing

Shipping

Global Logistics

After Sales

3 - 5 years Warantee

Failure Analysis

RMA(Returned Material Authorization)

Customer Certification Survey

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Transform Your Business Delivering Real-World AI Together

Integrate your unique AI technique into our current hardwares: **resell or co-brand licensed devices** at our channels.

Build your next-gen AI product powered by the NVIDIA Jetson module and bring your product concept to the market with Seeed's **Agile Manufacturing 0-∞**

Work with Amazing Ecosystem

Seeed is NVIDIA's embedded system reseller and preferred partner, by consolidating our best-in-class hardware, over 14 years expertise, NVIDIA's advanced system, cutting-edge technology from our software partners and the community, we aim at emerging all kinds of AI scenarios in our open-source platform to faster industry digital transformation.

We are calling more ISV, solution Integrator partners delivering real-world edge AI solution together.

- Integrating your unique technology, deliver to global embedded AI developers and enterprises.
- Building next AI products powered by the NVIDIA Jetson module, one-stop bringing your product to the market with Seeed's manufacturing, fulfillment, and distribution.
- Working with Seeed Amazing Ecosystem Partners together, unlocking more AI possibilities.

We are working with:

Azure, EDGE IMPULSE, roboflow, alwaysAI, YOLOv5, KubeEdge, deci (Break the AI Barrier), cogniteam, ultralytics, AIXON, zenus, balena, e-con Systems (Think Camera. Think e-con.), tryo·labs, MALAMUTE, TEKNOIR™

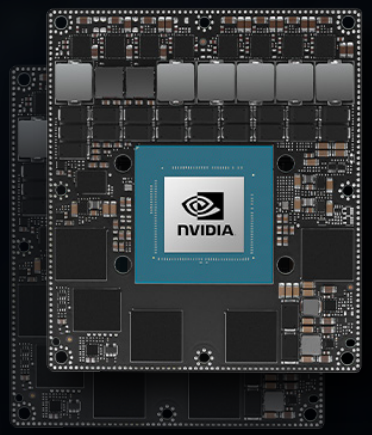
Buy Seeed Jetson products from NVIDIA partner and distributors

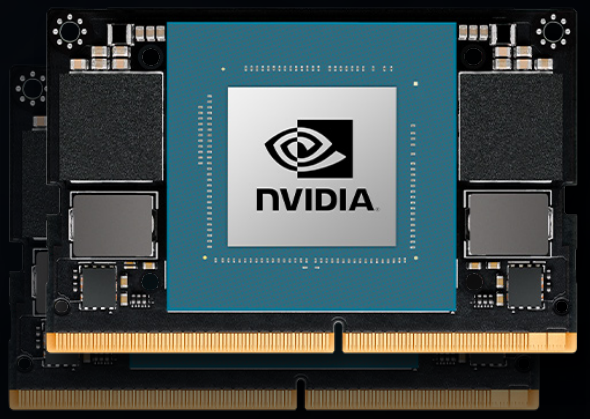
ARROW, Co.Tomorrowing MACNICA, C.R.G. ELECTRONICS, OPEN ZEKA, MDSTECH, RYOYO

Edge AI Partner Program

Seeed Edge AI Partner Program is free to apply anytime. We are aiming at becoming the most reliable hardware platform and empowering everyone to achieve their digital transformation goals. Seeed's Edge AI platform provides devices, carrier boards, peripherals, software tools and ML solutions. If you are working on AI products based on NVIDIA Jetson Platform, including Jetson Nano/Xavier NX/Orin NX/AGX Xavier/AGX Orin, we are looking for global AI partners to join us as:

- Enterprise AI software partner
- AI solution integrator
- Community co-inventor





seeed studio

EDGE IMPULSE

Edge Impulse

Edge Impulse is the leading development platform for machine learning on edge devices, free for developers and trusted by enterprises. Edge Impulse made ML development easier, accelerate ML solution development using low-code to advanced integrations with the support from an expert.

Find our partner »» edgeimpulse.com

Application:

Embedded Machine Learning
Cpmputer Vision

Industry:

Industry 4.0, Manfacturing, Retail

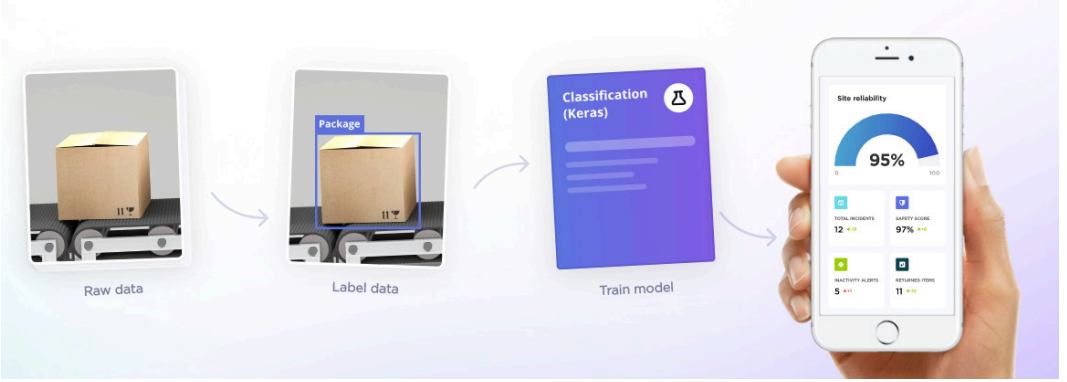
Supported Hardware

All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

Build ML pipeline for deploying audio, image classification, and object detection applications at the edge

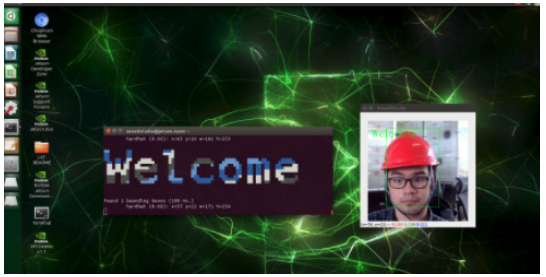
Users of Edge Impulse can leverage the power of the Jetson Nano for their embedded machine learning applications that demand higher performance, alongside the industry's tleading embedded ML platform that offers:

- The easiest-to-use embedded machine learning pipeline for deploying audio, image classification, and object detection applications at the edge with zero dependencies on the cloud
- Streamlined acquisition of critical environmental sensor data, previously discarded or only sent to the cloud, for empowering sensor fusion at the edge.



Deploy hard hat detection for enforcing workplace safety

Use Edge Impulse for end to end machine learning workflow: upload dataset, acquire custom data, visualize the data, train the machine learning model and validate the inference results. With Edge Impulse, you can easily deploy an automated real-time detection for hardhat-wearing compliance, along with the alert at the workspace. PPE compliance also includes gloves, masks, goggles, etc. You can also build custom model training for the full PPE detection pipeline.



seeed studio

deci
Break the AI Barrier

Deci

Empowers deep learning developers to accelerate inference on edge or cloud, reach production faster, and maximize hardware potential.
Find our partner »» deci.ai

Application:

Deep Learning, Model Optimization

Supported Hardware

All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

Getting Started with Deci on NVIDIA® Jetson Devices

Our collaboration with Seeed will empower countless users with optimized deep learning models ready for instant deployment," said Yonatan Geifman, CEO and co-founder of Deci. "No matter the hardware, nor if deploying on the edge or cloud, developers should have full accessibility to the latest developments in deep learning; this partnership brings us one step closer to that goal."

Deci's platform includes several modules, one being a cloud-based runtime optimization engine which enables users to automate the manual model compilation and quantization processes (OpenVino and TensorRT) on a wide variety of hardware types with just a few clicks. The result is an optimized model for the user's inference hardware. Users can also use the platform to optimize models for edge devices, a process that typically can only be carried out after users have purchased the devices themselves.

seeed studio

allxon

Allxon

Allxon is the market's first to provide powerful remote edge AI device management and disaster recovery solutions with Out-Of-Band (OOB) technology. As a partner of NVIDIA Jetson Ecosystem, Allxon delivers highly compatible solutions onto any branded Jetson platform.
Find our partner »» allxon.com

Application:

OTA
Device Management

Device Support:

All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

Efficient remote AI system based on NVIDIA Jetson platform

Edge AI Transforming Agricultural Landscapes

Farmers installed AI-driven cameras all around the farmstead to record, detect,and monitor livestock health and their lifecycle in real-time. These cameras are connected to and powered by edge devices, enabling the farmer to make informed data-driven decisions, be alerted to, and stay ahead of crisis situations, ultimately leading to the improvement of cattle management and economic growth.
Allxon Out-Of-Band (OOB) technology provides rapid disaster preventive measures. Seeed's Jetson Powered edge devices that enable data-driven smart farming are highly safeguarded in an electrical enclosure, forming the nucleuswhere "ALL" data is perpetually collected and processed 24/7, 365 days a year.
It is imperative that the systems work seamlessly and uninterruptedly for a highfunctioning farmstead.

seeed studio

YOLOv5 ultralytics

YOLOv5

YOLOv5 is a family of compound-scaled object detection models trained on the COCO dataset, and includes simple functionality for Test Time Augmentation (TTA), model ensembling, hyperparameter evolution, and export to ONNX, CoreML and TFLite.

Learn More »» ultralytics.com

Application:

Object Detection

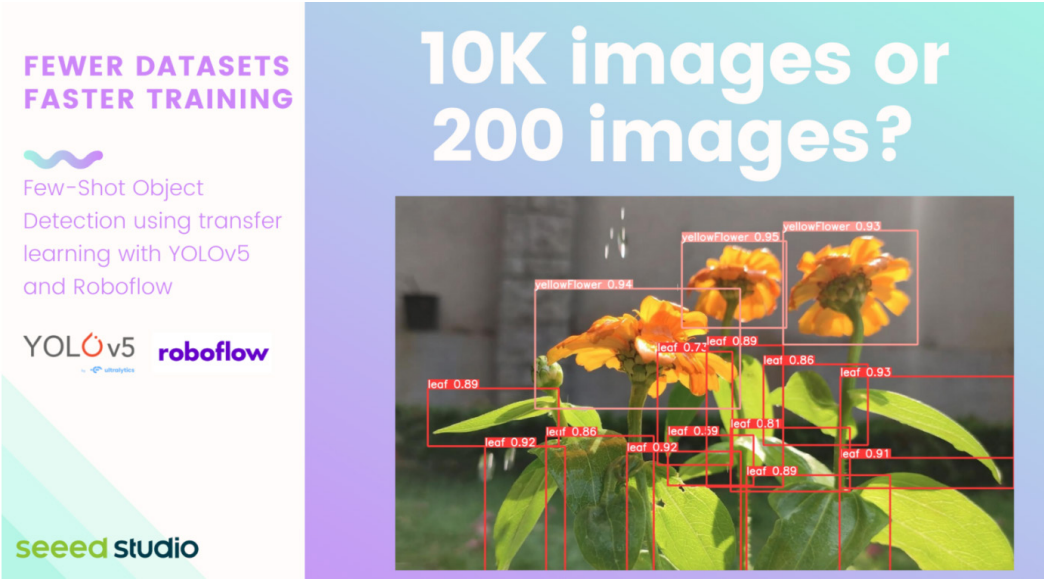
Device Support:

All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

Facing The Gap between AI's PoC to Production: Fewer Datasets, Faster Training

Machine learning is quite widely adopted in software industry applications like social media, YouTube, and E-commerce. It is not tough to acquire a billion level data through the internet experience. However, looking into real-world applications, there are many other industries that only have access to small data, for example, medical imaging, manufacturing, and environmental research .

Use transfer learning along with Ultralytics YOLOv5 and Roboflow to train a dataset with very few samples. We first initialize a model with weights from a pre-trained model and then start training the machine learning model that we need using a dataset as small as 200 images.



seeed studio

cogniteam

Cogniteam

Cogniteam is a technology start-up, it brings standout software solutions for autonomous robots.
Nimbus by Cogniteam is cloud-based ecosystem for robot fleet configuration, testing, deployment, and operations management. Nimbus makes your ROS journey intuitive using drag and drop tools and a rich set of ready-made AI algorithms that are ROS1/2 compatible.
Find our partner »» cogniteam.com

Application:

Robotics Development

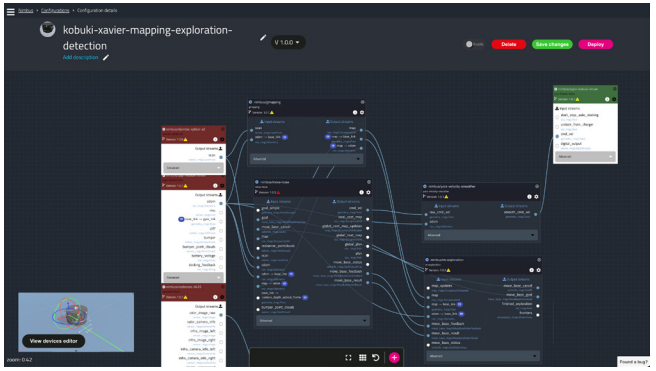
Device Support:

All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

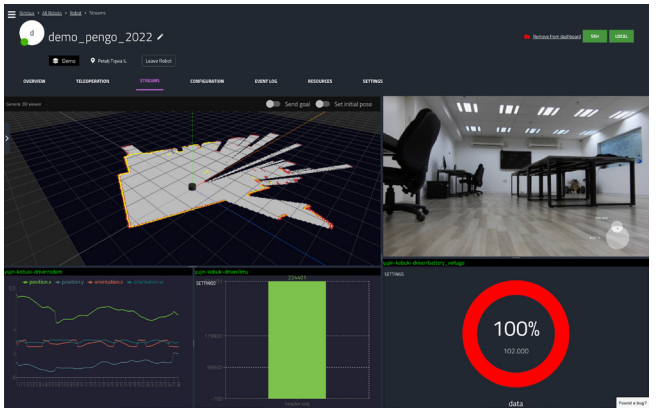
Seeed partners with Cogniteam to bring the drag and drop robotics development and deployable solutions for NVIDIA Jetson Platform

Robotics is a field of integrations, not merely development. You need to choose the correct computing power; you need to choose the right sensors, not develop them. It comes down to software integrations. With Nimbus, Cogniteam's cloud-based solution for robot developers and operations, all the above becomes simpler.

We are glad to partner with Cogniteam, aiming at delivering the easiest ever robot development process, from prototyping to production, including configuration, testing, deployment, and operations management.



Nimbus supports Seeed made Jetson powered platform carrier boards and min PCs, attach sensors such as RPLidar and cameras to build your robotic application from scratch.



You can also seamlessly connect your existing ROS projects to Nimbus. Based on the open-source Robot Operating System (ROS), Nimbus is truly a ‘plug and play’ solution.

seeed studio

alwaysAI

alwaysAI

alwaysAI is a leading computer vision development platform for creating and deploying machine learning applications on edge devices like the NVIDIA® Jetson™. alwaysAI removes barriers, making creating computer vision apps easier, faster and more effective across all industries

Find our partner »» alwaysai.co

Industry:

Retail, Construction, Transportation

Application:

Computer Vision

Device Support:

All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

Seeed and alwaysAI Partner to Accelerate Deploying Computer Vision at The Edge

Seeed and alwaysAI began their cooperation with NVIDIA® Jetson™ powered devices. The partnership makes computer vision come alive on the edge - where work and life happen:

Retail

Using data from existing cameras (such as IP or surveillance cameras) retailers are leveraging alwaysAI to count customers in their store in real-time, see time-based and seasonal trends from customer occupancy, customer movement, and dwell time.

Construction

alwaysAI is deploying applications in construction to help assess real-time progress of construction projects as well as track safety through personal protective equipment monitoring such as hardhats, safety glasses, and reflective vests.

Transportation

alwaysAI solutions within Transportation are helping the world transition to cleaner vehicles and helping fleet managers understand more about their passengers. Through passenger counting, queue counting, and in-cabin analytics, alwaysAI customers have used computer vision to increase revenue and decrease costs with computer vision AI.

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tryo·labs

Tryolabs

Expert team of engineers and advisors focused on making an impact with AI-powered solutions.
Machine Learning consulting services: Predictive Analytics, Computer Vision, and Natural Language Processing.

Find our partner »» tryolabs.com

Software:

YOLOV5, DeepStream SDK,
NVIDIA Metropolis

Industry:

Industry 4.0

Application:

Machine Learning

Device Support:

reComputer J2011/J2022 Powered by
NVIDIA Jetson Xavier NX

Detecting safety helmets in realtime

Personal Protective Equipment (PPE) has made its way into mandatory requirements of construction sites due to its importance to workers'safety. Tryolabs leverages Seeed's reComputer edge devices built with Jetson Xavier NX 8GB module develop a computer vision analytics solution that tackles a c hallenging task in today's industry 4.0 eld - detecting safety helmets in real-time.

YOLOv5 vastly outperformed Faster R-CNN, obtaining better metrics in a much shorter time. In terms of inference time, both models performed similarly, taking around 0.08 seconds for each image on the edge device (12.5 FPS). By leveraging DeepStream SDK,the inference time wasboostedtoa staggering 0.012 seconds for each image (82.8FPS)onthe same NVIDIA Jetson Xavier NX.

* Source: GDUT-Hardhat Wearing Detection (GDUT-HWD)

* Source: GDUT-Hardhat Wearing Detection (GDUT-HWD)

seeed studio

roboflow

roboflow

Roboflow empowers developers to build their own computer vision applications, no matter their skillset or experience. You can host a trained model with a single click or build your own custom models. Roboflow Annotate detects objects in your images and places bounding boxes around them. If an annotation is misaligned, it's easy to adjust its size and position.

Find our partner »» roboflow.com

Industry:

Retail; Traffic Management; Manfacturing

Application:

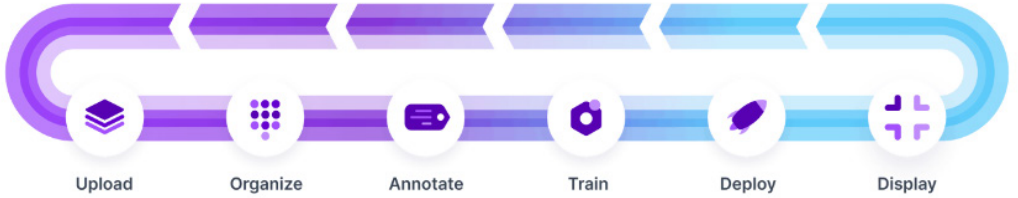
Computer Vision

Hardware used:

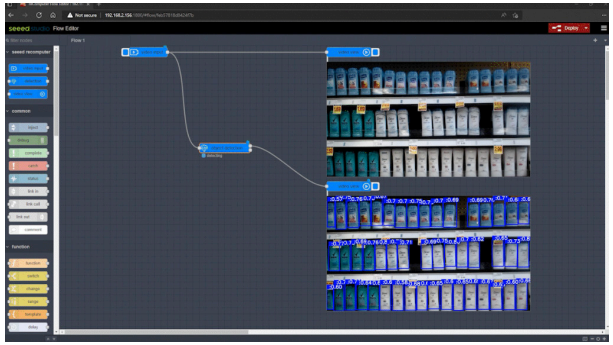
All Seeed's NVIDIA compatible carrier boards and devices, Official NVIDIA dev kit

Train a working computer vision model with fewer images

We work with Roboflow to annotate images, directly import images or videos. Roboflow help distribute the dataset into "training, validation, and testing", as well as add further processing to these images after labeling them. Furthermore, it can easily export the labeled dataset into YOLOV5 PyTorch format which is what we exactly need for fewer dataset needed!



You can download a number of publically available datasets such as the **COCO dataset, Pascal VOC dataset** and much more. Roboflow Universe is a recommended platform which provides a wide-range of datasets and it has **90,000+ datasets with 66+ million images** available for building computer vision models.



seeed studio

MALAMUTE

Malamute

Malamute's mission is to enable efficient communication in the toughest environments. Founded in 2020, the Malamute team sought to combine the industrial communication world with the power of AI, creating the next generation of communication workflow. Malamute has partnered with multiple industry leaders to bring human-centric assisted reality to the front lines.
Find our partner ››› malamute.us

Industry:
Industry 4.0

Application:
Industrial Communications

Edge Device Used:
NVIDIA Jetson AGX Orin Dev Kit, reServer J5014

Software:
RIVA SDK

NLP simplifies industrial communications and improves manufacturing productivity

Challenge:

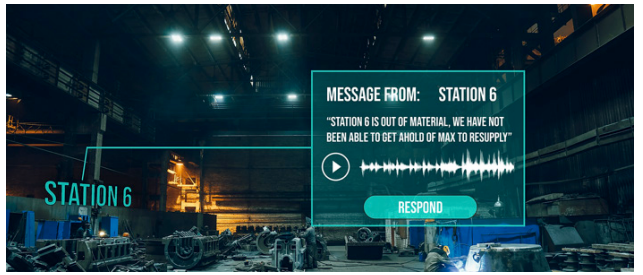
In the industrial manufacturing workplace, workers are constantly having to leave their stations to communicate information. Having to manually locate individuals throughout the facility or use a tedious data input solution prevents workers from completing their jobs. Is there any way we can optimize the workflow of asynchronous communications to benefit both the worker and the workplace?

Solution:

Malamute uses natural language processing(NLP) and spatial computing to help improve workplace productivity and process traceability. Powered by NVIDIA Jetson Orin and AGX Xavier and working with NVIDIA Riva, Malamute's AI-layered audio communication network empowers industrial workers with the right data at the right time. The NLP-powered communication system helps improve overall equipment efficiency by keeping workers focused on their jobs and at their stations. Employees can record voice messages regarding operational situations and processes which get sent to the intended audience. This allows for effortless and efficient communications compared to a Walkie-Talkie, phone call, or email.

Result:

Minimizes worker travel for communications, Maximizes worker productivity, Improve workplace efficiency.



seeed studio

TEKNOIR™

Teknoir

Teknoir was founded in 2019 to reshape the industry's future democratizing artificial intelligence with its MLOps platform not only for data scientists but also for those that aren't data scientists or programmers via an intuitive, no-code dev environment in a hybrid cloud approach that enables inferencing of AI data on lightweight embedded devices at the far edge to drastically improve performance, security, and scalability.

Find our partner »» teknoir.ai

Application:

MLOPs Platform
Computer Vision

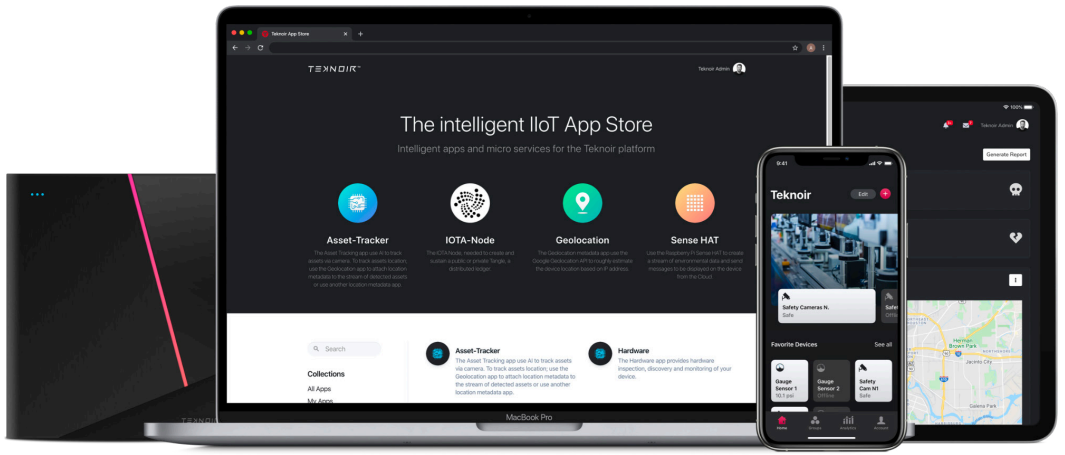
Supported Hardware:

reTerminal powered by Raspberry Pi CM4
reComputer J2011,J2012, J2021

MLOPs enables easy sustainable recycling at the edge

"Seeed continues to serve as an instrumental resource for Teknoir with their offering of innovative edge AI hardware solutions. Seeed's devices provide Teknoir with unique opportunities to develop AI solutions for its customers that address a variety of important use cases at the edge." -- Jonathan Klein, Founder & CEO at Teknoir

Teknoir, offering MLOps platform and AI solution company, has been working with Seeed's reComputer J2011 and reTerminal, with their no-code Dev Studio for industry 4.0 applications such as workers' safety, manufacturing of work-force optimization, and preventative maintenance and smart city of recycling materials detection. Coupled with cameras, LTE and running Teknoir's Orches-tration Engine, these edge devices have secure connectivity to the Teknoir Cloud. Teknoir's client-partner is able to use the Dev Studio for pushing their trained machine learning model, as well as managing the fleet of hardware and software.



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armitage | turning Data into Insights
Your Solutions Partner Since 1972

Armitage

Established since 1972, Armitage is one of the leading IT services providers in HK and PRC. Over 150 IT professionals, they have 50 years experience and proven track records in delivering quality solutions to various sectors public /private sectors.

Find our partner »» armitage.com.hk

Industry:

Smart City

Application:

Patrol Robot

Hardware used:

- A206 Carrier Board
- reComputer J2011 for NVIDIA Jetson Xavier NX

Hardware used:

- Deepstream
- PaddleOCR

Robot Security Guard Patrols Hong Kong Parking Lot

Patrol Robot is a new milestone in the development of security systems - an emerging stage of technological development that has brought the industry to a new standard of best practices for safeguarding people and property. Autonomous mobile robots designed for patrolling could reduce, over time, completely eliminate the need for human workers to keep large Armitage's Patrol Robot solution brings 24/7 peace of mind to Hong Kong's underground parking lot with fully automatic robotic security guards without operator supervision.

- License Plate Recognition System (LPRS)
- Operate 24/7 without human intercention
- Facial recognition, people counting
- Fire and smoke alarm

Benefits:

Reliable 24/7 security monitoring, day or night, in any weather.
Capable of identifying various types of objects/situations.
Real-time video and transmission.
Significant savings in manpower and filling the loophole after staff's patrol each time.
Reduced driving, walking, idling, and unnecessary effort in finding a space.

seeed studio

DOGU 도구공간

Dogugonggan

Dogugonggan was founded in March 2017 in Seoul, South Korea, mainly dealing in AI and autonomous robots in the security service industry. Currently has two robots, Iroi and Patrover, in its product line and was selected as a research lab for the Technology Creative Seed Project. To date has 10 autonomous patrol robots used in different parts of South Korea with plans to scale up production in the next two years

Learn more »» dogugonggan.com

Industry

Robotics

Applications

AMR Autonomous Mobile Robot
Outdoor and Indoor Security Robot

Edge Devices Used

AGX H01 Dev Kit
reComputer J2021
A205 carrier board

Software

TensorRT

Robot Iroi and Patrovor integrated with 1:N simultaneous monitoring for security

Challenge:

Security patrols included repetitive work in most of time, but the job can also brings chance of danger in the blink of an eye, such as a fire that can escalate and potentially injure people, especially security personnel. This is an area well suited for robots that are suited to perform repetitive tasks autonomously and still allow humans to interact remotely with the environment.

Solution:

Dogugonggan develops both indoor/outdoor full stack autonomous robots: Iroi and Patrover are powered by different NVIDIA Jetson solution and integrate with computer vision AI, thermal AI, sound AI, gas detection, and video streaming. Dogugonggan provides a stable operation of security services by deploying self-driving robots equipped with patrol-specific AI and synchronous monitoring solutions (**1:N control**). Besides security, Iroi and Patrovor will also help with air quality monitoring by integrating with CO2, NO2, SO2, VOC, PM2.5, PM10, Temperature, and Humidity multiple environmental sensors.

seeed studio

SMART OCEAN SYSTEMS Laboratory

Smart Ocean Systems Laboratory

The SOS lab is found in October 2018 by the Principle Investigator, Mingxi Zhou.
The lab is located at beautiful Narragansett Bay Campus, University of Rhode Island.
The lab has various types of marine robotic platforms and a full suite of sensors for conducting research.

Industry:

Ocean Research

Application:

Robotics, ROV

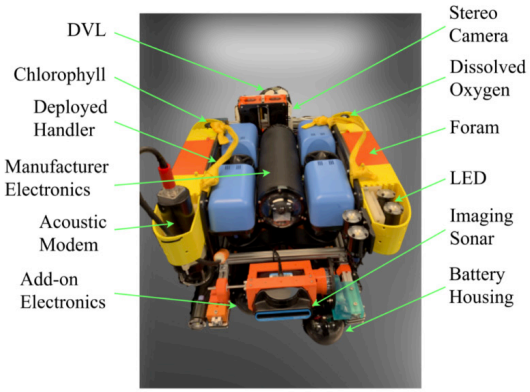
Hardware used:

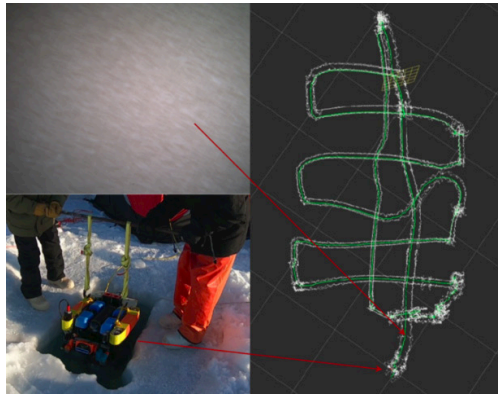
- BlueROV2
- Add-on sensors
- Jetson Sub Blue mini PC based on NVIDIA Jetson Xavier NX

Towards Under-ice Sensing using a Portable ROV

From 2020, **Smart Ocean Systems Laboratory from the University of Rhode Island** is working on the project of **Navigating Unmanned Underwater Vehicles (UUVs) at the Ice-water Boundary**. The project team reported their progress in using a portable ROV for under-ice sensing, and demonstrate the feasibility of using small ROVs (0.7m long and 0.5m wide) to sample the under-ice environment near the coast. The recent field trials were conducted in Utqiagvik, Alaska in March 2022.

Field tests were conducted in March 2022 in Utqiagvik, Alaska on a flat landfast ice about several hundred meters off the coast. The ice thickness was about 1.5 meters. As shown in Fig. 3, ROV was lowered through a rectangle ice hole using straps with hooks at the end. The recovery was done by manually driving the ROV to the hole, then the straps will hook onto the ROV for lifting.





seeed studio

KEISUUGIKEN

KEISUUGIKEN

KEISUUGIKEN is a research and development location where advanced technology specialists from various countries gather together. They are working to expand products and services such as robots, artificial intelligence, and VR in collaboration with overseas companies and researchers.
Find our partner »» keisuu.co.jp

Industry:
Industry 4.0

Application:
Warehouse Towing Robot

Edge Device Used:
Jetson Sub Mini PC powered by Xavier NX

Meet PITAKURU, an Autonomous towing robot capable of towing loads in the warehouse

Challenge:
Moving businesses online becomes new mainstream trends, making delivery services the new normal. In line with the growth of the online business, the demand for courier services that help deliver the ordered packages has risen significantly. Accordingly, the burden it has on the workers also increased.

Solution:
In face of this new challenge, **KEISUUGIKEN** and Seeed came together to provide an autonomous towing robot called “PITAKURU”. “PITAKURU” has the ability to track humans while towing heavy objects and can be operated indoors and outdoors. It uses laser tracking, enabling to follow individuals without being affected by external light, and there is no need to install accessories such as tracking beacons. These features enable “PITAKURU” to be used anywhere with easy access, even if the users are unfamiliar with the use of towing technologies.

Result:
By introducing “PITAKURU”, the amount of cargo that can be handled by one worker will increase up to two to three times more, and the time needed to move packages around the warehouse, enhancing visability of traffic.

seeed studio

intflow

Intflow

Intflow is a deep-tech startup founded in 2019 with the goal of eliminating industrial inefficiencies by developing the world's best non-contact biometric information analysis technology.

Learn more at »» intflow.ai

Industry:
Agriculture

Application:
Livestock Managment

Edge Device Used:
reComputer J1010 powered by Jetson Nano

Software:
Intflow EdgeFarm, TensorRT

Precise livestock management helps farmers optimizelivestock productivity

"With Seeed's reComputer J1010, we can reduce the management cost per animal by 98% compared to the competing solution that relies on GPU-cloud because the Edge AI solution with Jetson could provide the lowest inference cost per a camera channel." said Kwang Myung Jeon, CEO at Intflow Inc.

Challenge

The livestock industry is huge, however, several issues impede its productivity, such as the soaring feed prices due to extreme weather conditions, disease risk, environmental and pollution regulations.

Solution

Intflow provides EdgeFarm, an AI solution that perceives livestock injuries and diseases to help farmers manage and optimize livestock productivity. EdgeFarm obtains the biometric data of each 40 piglets for each ceiling-mounted camera.

It measures real-time data of the pigs for example, its eating and exercising habits.

Sentiment analysis in the retail industry becomes more accessible

Challenge

Brands need to understand their customers on a deeper level. Passive solutions such as facial analysis sit on the cutting edge of AI and provide rich information. But they comprise many bits and pieces, making them hard to deploy in stores. In addition, brands operate under continuous changes in merchandise display, floor plan layout, audience demographics, and regional trends.

Solution

Zenus and Seeed came together to provide an all-in-one solution powered by NVIDIA Jetson to simplify the process and fulfill your needs. Picture a smart device that connects to any camera and processes the video feed locally. All you need to do is power up the unit and it instantly works. The device sends the meta-data to the cloud to generate actionable reports. You have access to real-time metrics such as impressions, demographics, positive sentiment levels, and more. All the information is ethically sourced and displayed on a live dashboard.

Results

Improve conversion rates and increase sales by up to 382%

Assess consumer satisfaction and demographics with over 95% accuracy

Zenus

Zenus is an Austin, Texas, startup that offers a fully-integrated solution for safe data capture of consumer behavior. Zenus has packaged powerful AI models into a smart device powered by NVIDIA SoMs, to drive the ethical use of facial analysis for the in-store retail market. Their proprietary technology produces reports about consumer behavior and engagement without the risk of data theft or personal identification.

Find our partner ››› zenus.ai

Industry:
Retail

Edge Device Used:
Seeed A206 Carrier Board compatible with Jetson Nano/Xavier NX/TX2 NX

seeed studio

AZIMORPH

Azimorph

Founde in 2021, Azimorph is a group of passionate engineers based in Singapore who aim to make robotics' delivery the new normal.

Industry:
Smart Logistics

Application:
Delivery Robot

Edge Device Used:
reComputer J2012, powered by NVIDIA Jetson Xavier 16GB

Meet Techie: on-demand autonomous delivery robot

Challenge:

Many businesses have started to rectify their last-mile delivery operations. Their current operational process is to hire third-party courier companies, and it is very inefficient as it requires an astonishing amount of effort and time. Furthermore, as e-commerce continues to thrive, it will cause an upsurge in parcel deliveries and other issues, especially in densely populated cities.

Solution:

Techie is a smart navigation delivery robot built by Azimorph, seeking to eliminate the need for door-to-door deliveries. The robot would navigate its way toward the consumer's house according to the time selected by the consumer beforehand. Afterwhich, Techie will return to the centralized bay to charge or load up more parcels. Techie comes with a safety feature that stops it when danger or unforeseen circumstances are detected, for example, a human in its path, construction zones, or roadblocks.

Result:

- Reduced manpower cost, no need for last mile delivery drivers
- Reduced cars on the road, decreasing traffic congestion
- Reduced vehicle pollution
- Faster than traditional couriers, would not be stuck in the traffic or subjected to any delivery drivers' schedule
- Do not require rest like delivery drivers, able to work 24/7

seeed studio

跨维智能 DEXFORCE

DexForce

DexForce is a start-up AI company focusing on 3D machine vision. The company develops a physics engine named Mixed AI, which can generate synthetic data to train AI models by applying cutting-edge 3D geometric deep learning technology. The company supplies 3D smart cameras and 3D vision solutions to manufacturing customers on the basis of the AI platform. DexSense 3D industrial smart camera adopts advanced active stripe structured light technology.
Learn more ››› dexforce.com

Hardware Used
Jetson Nano module

Applications
Industrial 3D camera

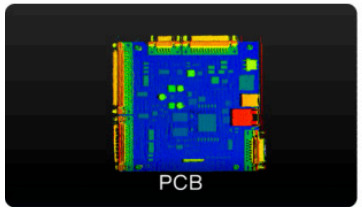
Service Used
Seeed Fusion PCBA Service

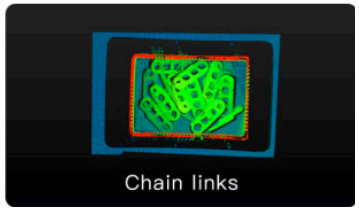
Software
DexForce developed graphical vision algorithm platform

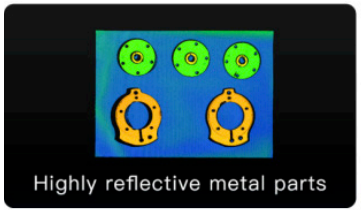
Open source 3D Camera Breaks The Cost Barrier to Industrial 3D Machine Vision with Seeed Fusion PCBA

Challenge:
With an increasing number of industrial robots in factories all over the world, 3D vision has received more attention due to the lack of depth information of 2D vision.

Solution:
3D industrial cameras can be eyes of robots, which provide the three-dimensional spatial coordinates of an object. Powered by NVIDIA Jetson Nano, Xema is able to run 3D point cloud recognition algorithms and robotic arm control programs. Xema is also equipped with a DLP projector and a CMOS sensor, which enable the camera to perform fast imaging speed and strong anti-ambient light capability. It can generate high-resolution and precision point clouds of various objects such as reflective metal, black carbon fiber, thin cardboard, etc.
Seeed Fusion provides Dexforce team with delicate manufacturing advice from 0.1 to 1. Power-efficient with a compact form factor, Jetson Modules brings accelerated AI performance to the edge.







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PeerROBOTICS

Peer Robotics

Peer Robotics is a collaborative mobile robotics company building material handling solutions for manufacturing industries. Peer Robotics mobile robots can learn from humans in real-time, allowing people on the shop floor to integrate and deploy the solutions easily.

Learn more ››› peerrobotics.in

Applications

Collaborative Mobile Robot

Hardware Used

Jetson Xavier AGX

Software

ROS

Bringing Humans in the Loop to help SMEs Automate

Challenge:

Global manufacturing industries have rapidly evolved facing automation need, no matter small and medium-sized enterprises (SME) or large corparates. However, when SMEs are facing labor shortages or increased operating costs, the high cost and complexity of automation solutions make it difficult to adopt these technologies and transform quickly.

Solution:

Peer Robotics believes that the future lies in collaboration between humans and robots rather than fixed automation. They are building material handling solutions that can learn from humans in real-time, allowing people on the shop floor to interact with these robots just like they would interact with a trolley. Humans can simply grab the robot, move it from point A to B, and in this process, teach the robot how to perform the tasks autonomously the next time onwards. This reduces the need for specialized engineers or training, further reducing fixed costs.

Peer Robotics utilizes Jetson Xavier and Intel NUC for the onboard computation of mapping, path planning, obstacle avoidance, and natural navigation. Along with intel real sense cameras as a key visual navigation component.

Peer Robotics also develops its own custom PCB boards like charging modules, IMU boards, central control units, etc.

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Theia Scientific, LLC

Theia Scientific is a technology company that provides unclouded machine vision to microscopy instrumentation and quantitative image analysis workflows. The team is built with experts in edge computing architectures for scientific instrumentation, data analytics, and AI model development.

Learn more »» theiascientific.com

Applications

Computer Vision

Edge Devices Used

NVIDIA Jetson AGX Orin
NVIDIA Jetson AGX Xavier
Jetson Xavier NX
Jetson Mate

Software

Theiascope™ platform

PyTorch, Anyscale
Grafana

Volkov Labs:open-source custom plugin for Grafana.

Balena: manage IoT fleets

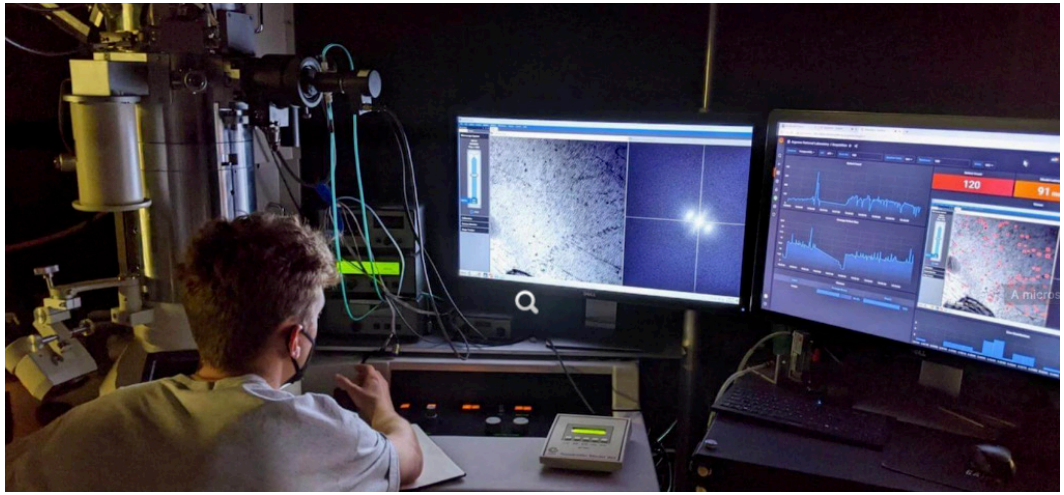
Real-time AI-powered microscopy image analysis at the edge

Challenge:

Microscopes are generally deployed in “network-constrained” environments and do not have dedicated GPUs for computation. Thus, it is essential to bring Cloud-like computational resources to the microscope instead of bringing microscopes to the Cloud.

Solution:

Theiascope™ platform created by Theia Scientific provides **real-time image and data analysis automation** technology for scientists and engineers who conduct research utilizing optical, electron, and **X-ray-based microscopy** with instrumentation in network- and time-constrained environments. This technology can **cut labor costs by 80%, reduce training time and operational expertise, and accelerate the delivery of unbiased results from years, months, days, to seconds in the energy, health, manufacturing, and transportation sectors.**



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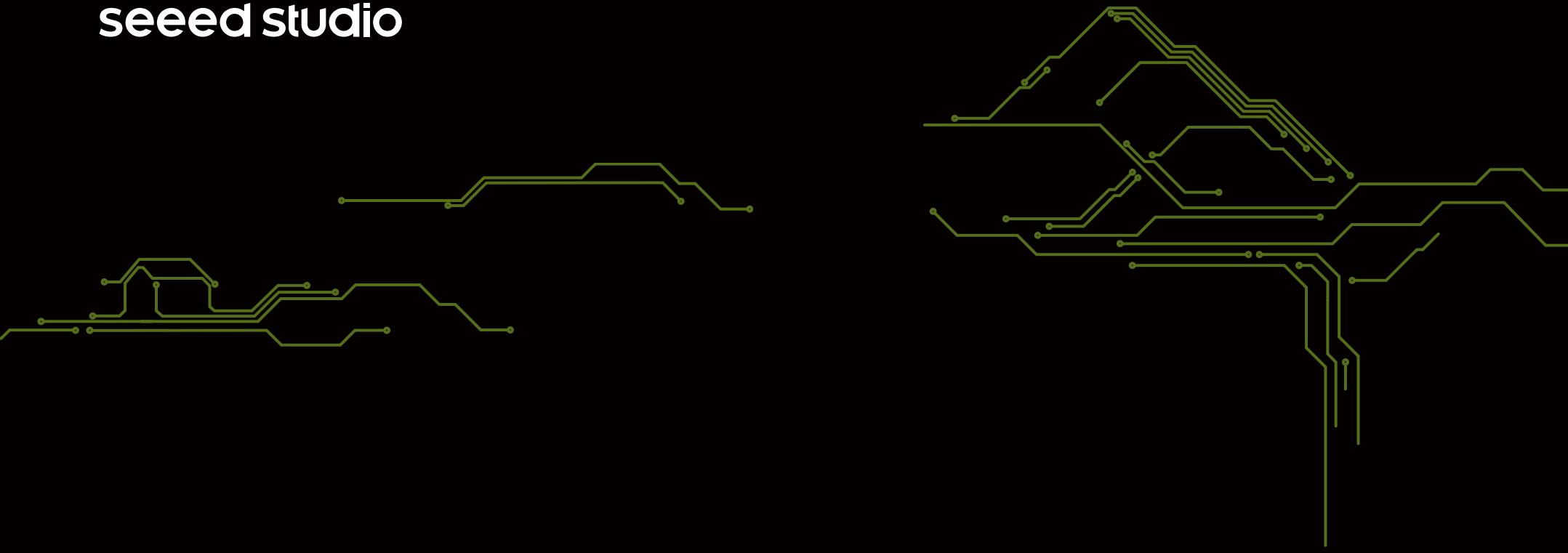

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