



# JETSON ORIN NANO PRODUCT INTRO DECK

SEP 19, 2022

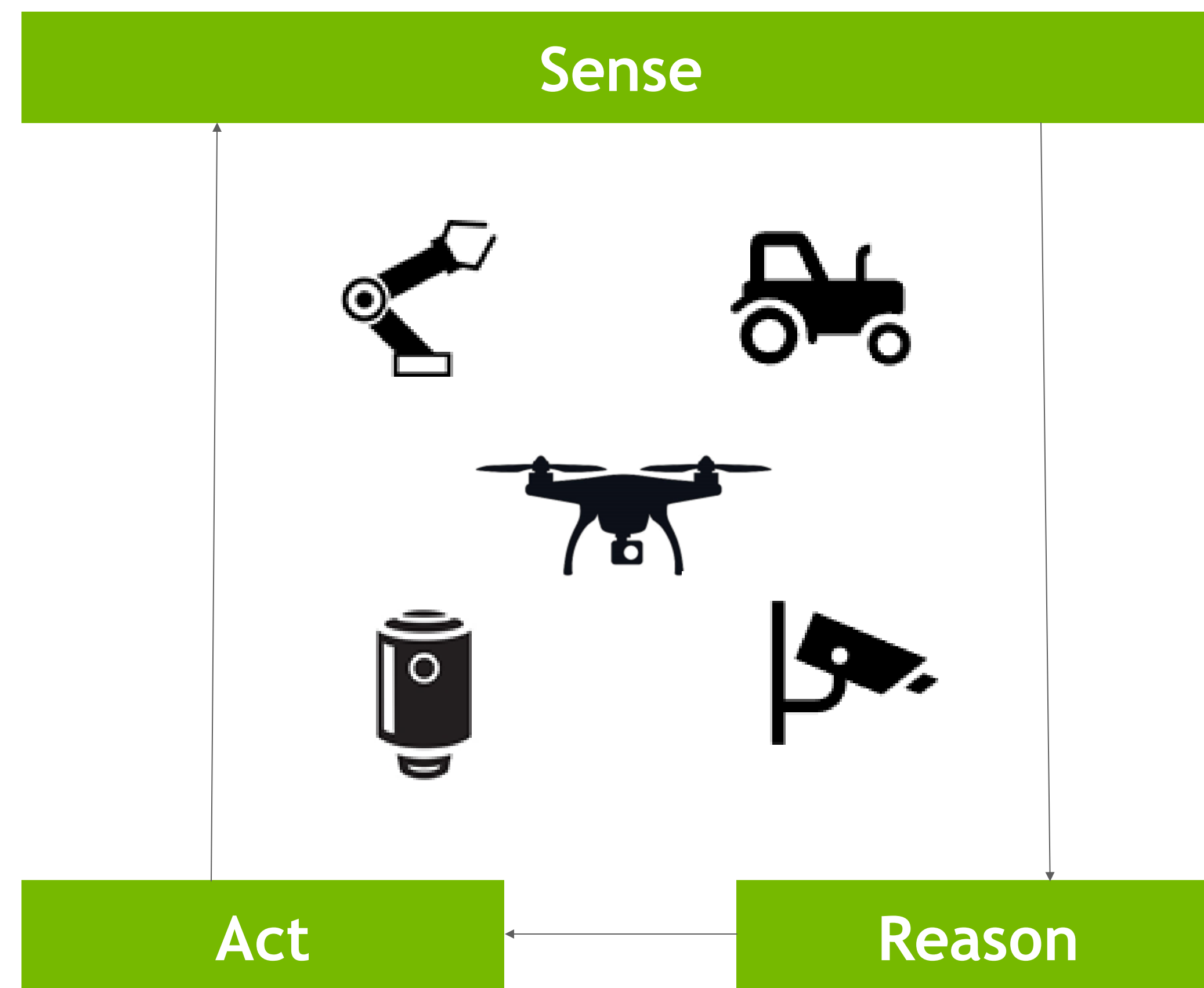


# NVIDIA JETSON

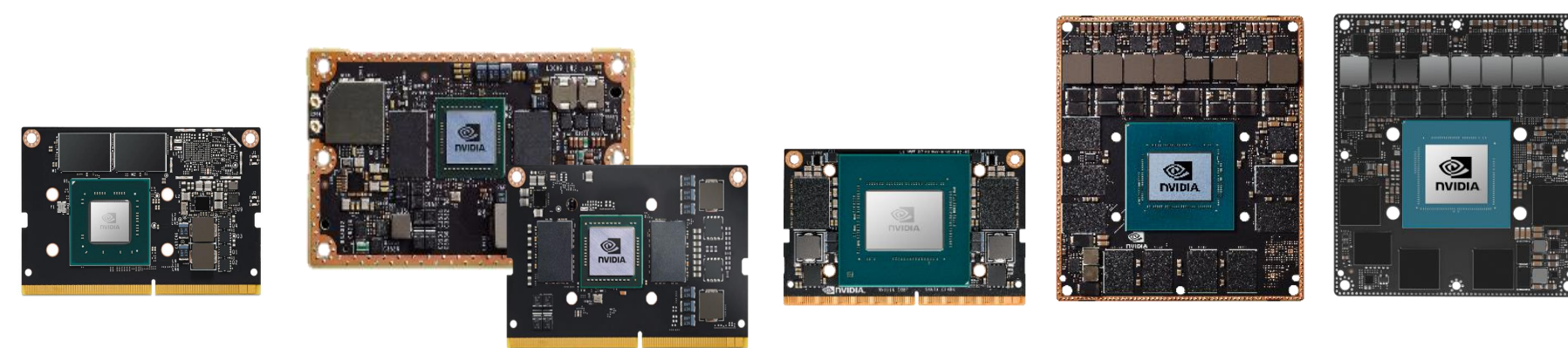
## Software-Defined AI Platform

### AI at the Edge

Sensor Fusion & Compute Performance



### JETSON COMPUTER



[Autonomous Machines: The Future of AI | NVIDIA](#)

### SOFTWARE DEFINED

SDK, Design Tools, Libs, GEMs



Jetpack SDK · CUDA · TensorRT · Triton · ONNX · ROS

[Jetson Software | NVIDIA Developer](#)

### ECOSYSTEM

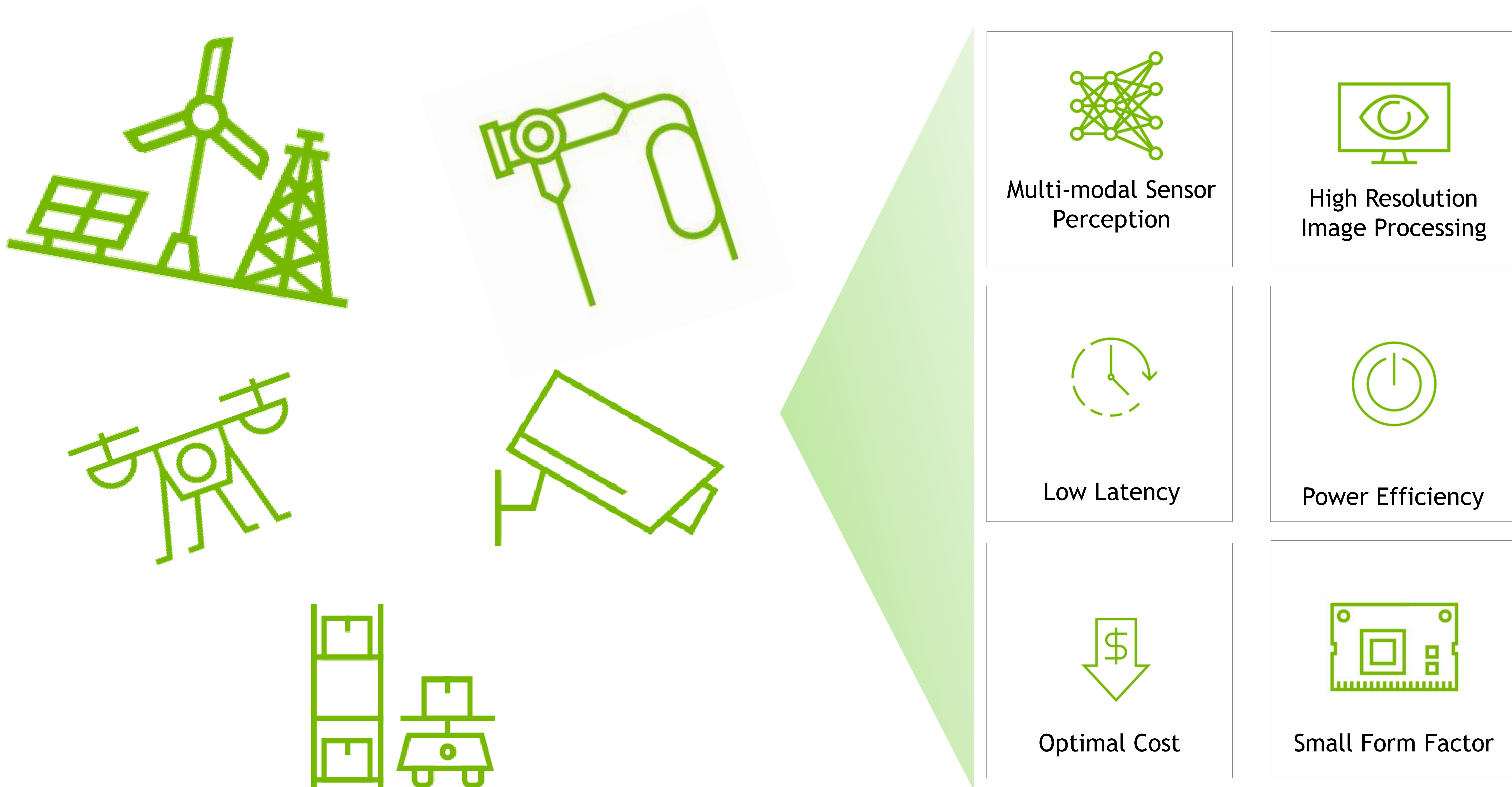
Expertise, Time to Market



[Jetson Ecosystem | NVIDIA Developer](#)



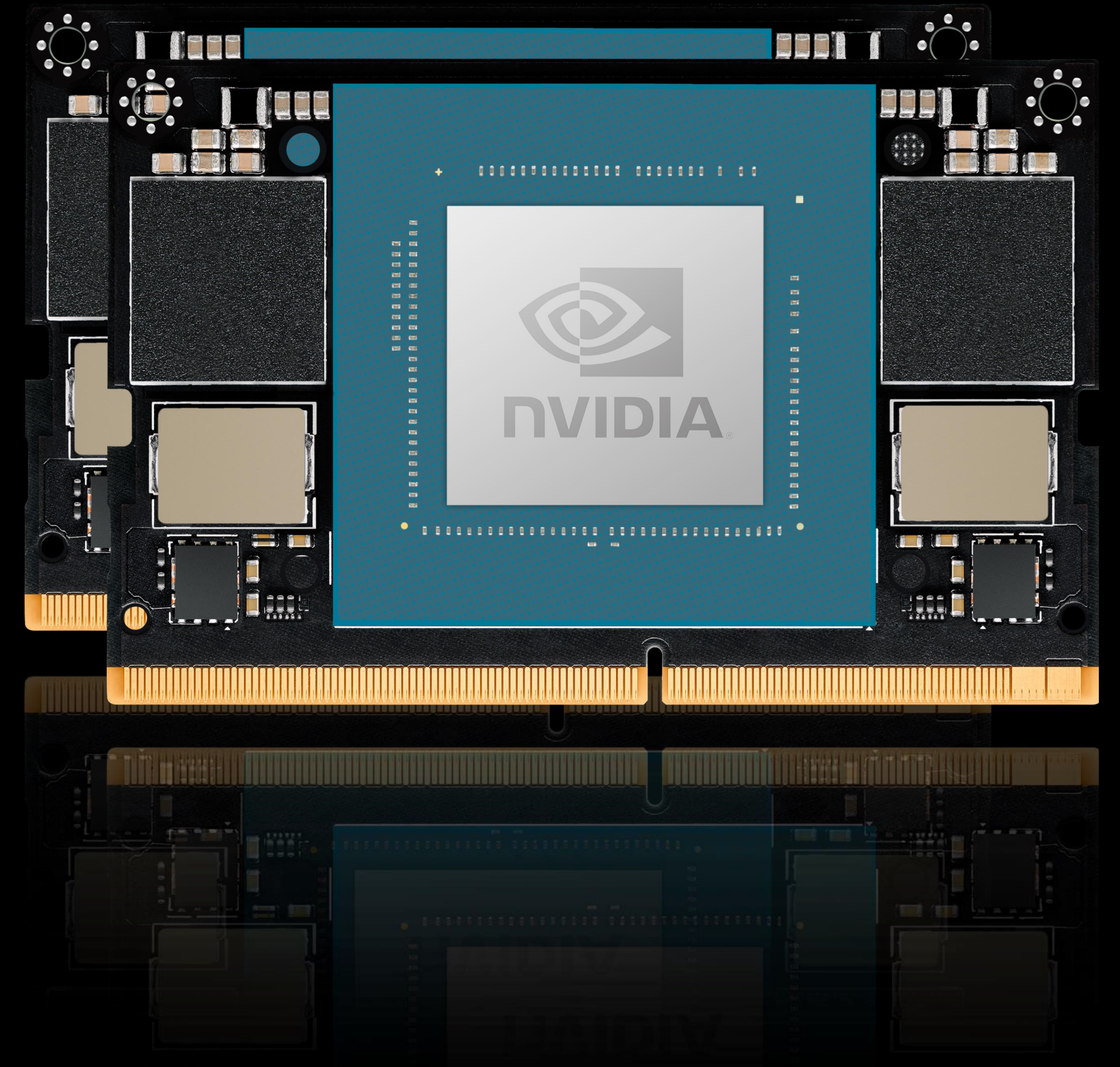
# ENTRY LEVEL EDGE AI AND ROBOTICS CHALLENGES





# INTRODUCING JETSON ORIN NANO SERIES

- Up to 40 INT8 TOPS powered by Ampere GPU
- 6x A78 ARM CPU
- Up to 8 GB memory, 68 GB/s
- Orin Nano and Orin NX series are 100% pin and form factor compatible
- Production modules will be available Jan 2023
- Get started developing for the Orin Nano series with AGX Orin devkit\*



\* The Jetson AGX Orin Developer Kit can emulate both Orin NX series and Orin Nano series modules.



# NEW BASELINE FOR ENTRY LEVEL AI

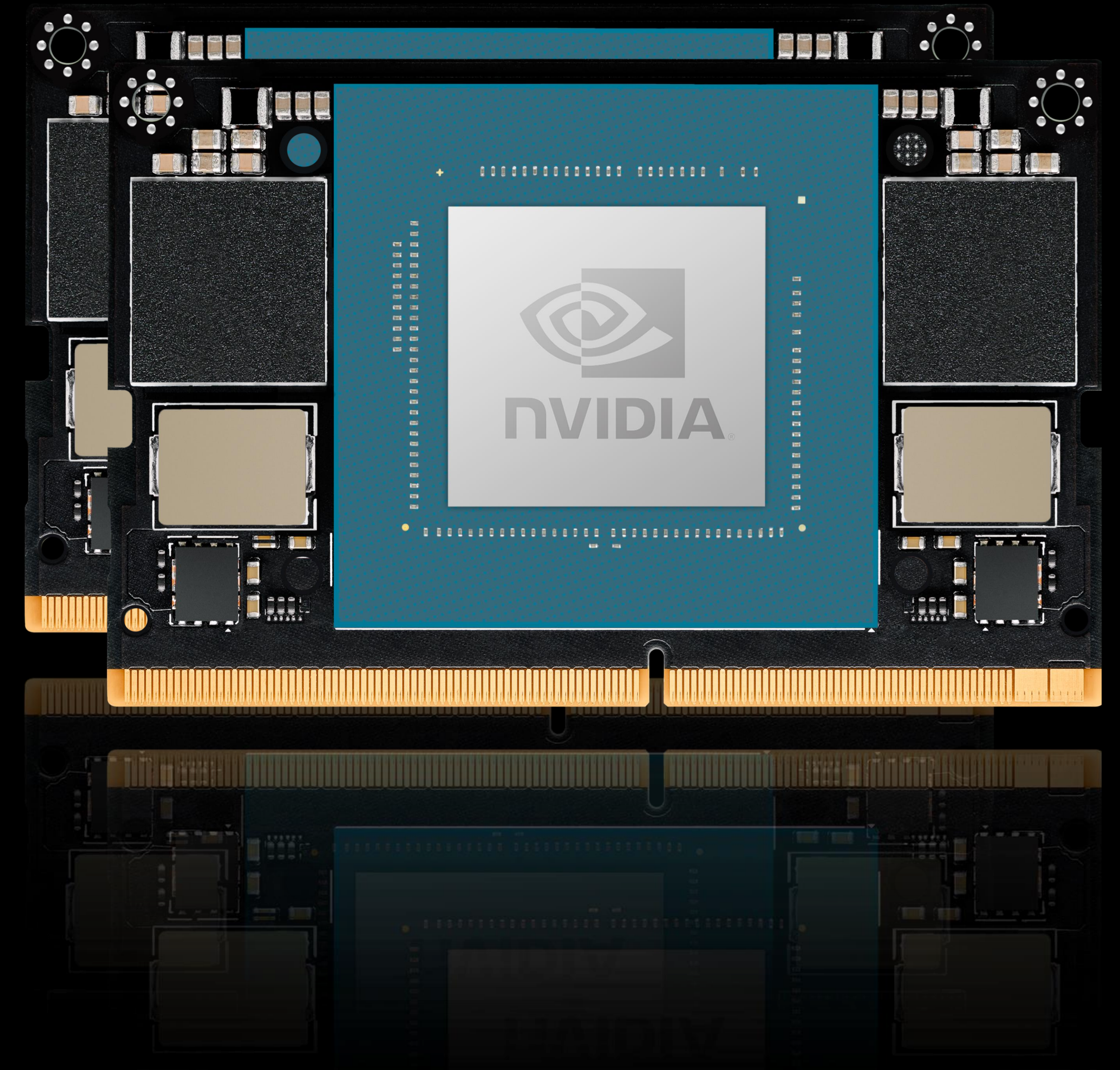
## JETSON ORIN NANO 8GB

- 7W to 15W
- 40 INT8 TOPS (Sparse), 20 INT8 TOPS(Dense)
- 6 CPU Cores, 1024 CUDA cores + 32 Tensor Cores
- 8 GB memory, 68 GB/s
- \$299\*

## JETSON ORIN NANO 4GB

- 5W to 10W
- 20 INT8 TOPS (Sparse), 10 INT8 TOPS(Dense)
- 6 CPU Cores, 512 CUDA cores + 16 Tensor Cores
- 4 GB memory, 34 GB/s
- \$199\*

*\*All prices are based on 1Ku+ Qty.*





# INTRODUCING THE ORIN NANO ARCHITECTURE

## Advanced CPU

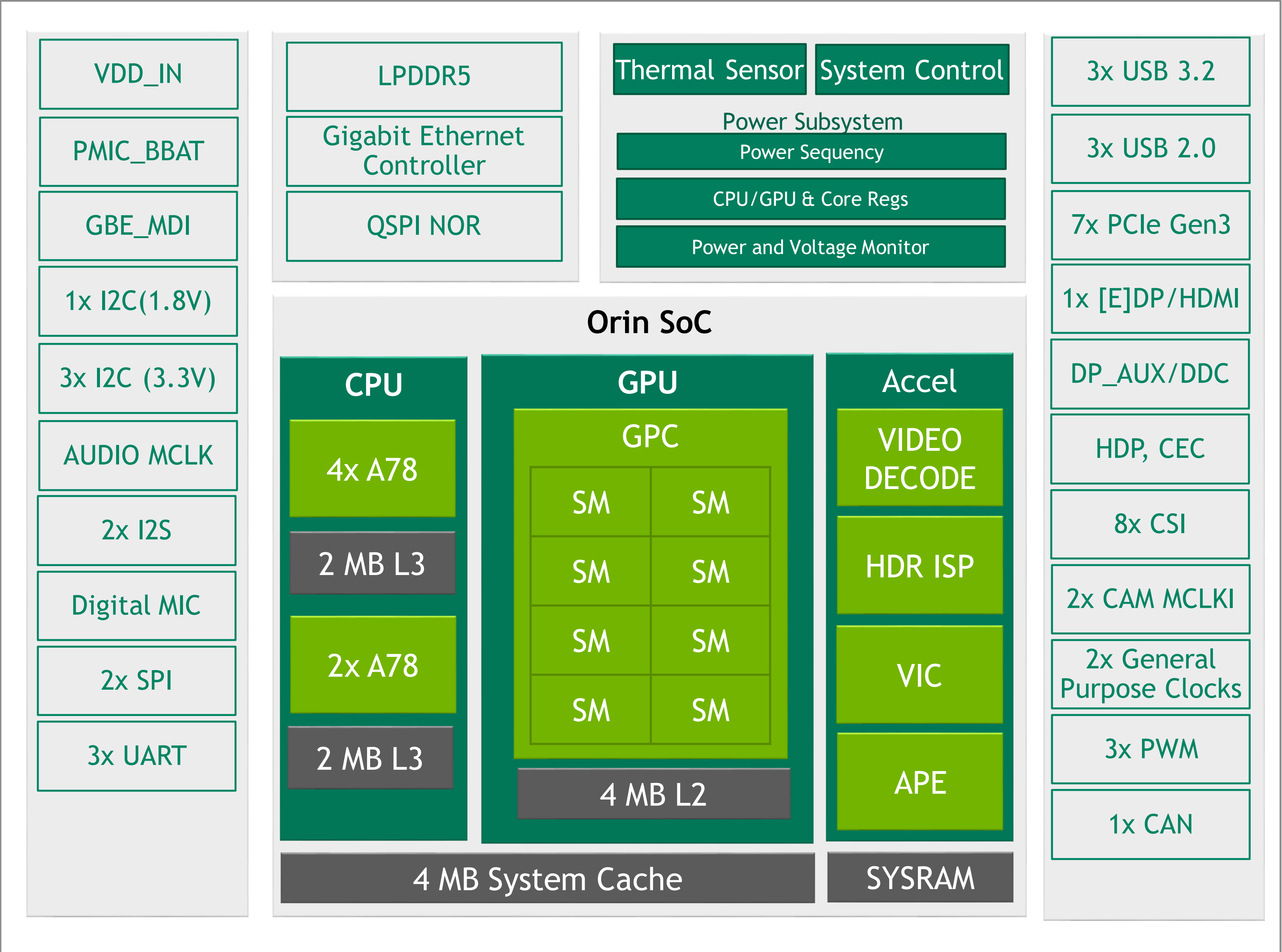
- 6x Cortex A78 Cores  
ARM Arch V8.2
- 106 SPECint\_rate 2006

## Next-gen GPU

- \*1 GPC / 4 TPC / 8 SMs
- \*1.28 FP32 CUDA TFLOPs

## DL Performance

- \*40 Sparse TOPs
- \*20 Dense TOPs



## Includes Memory and Power Solution

- 64-bit or 128-bit LPDDR5
- Up to 64 GB/s

## Pin and Form Factor Compatible with Orin NX

- 69.6 mm x 45 mm
- 260-pin SO-DIMM connector

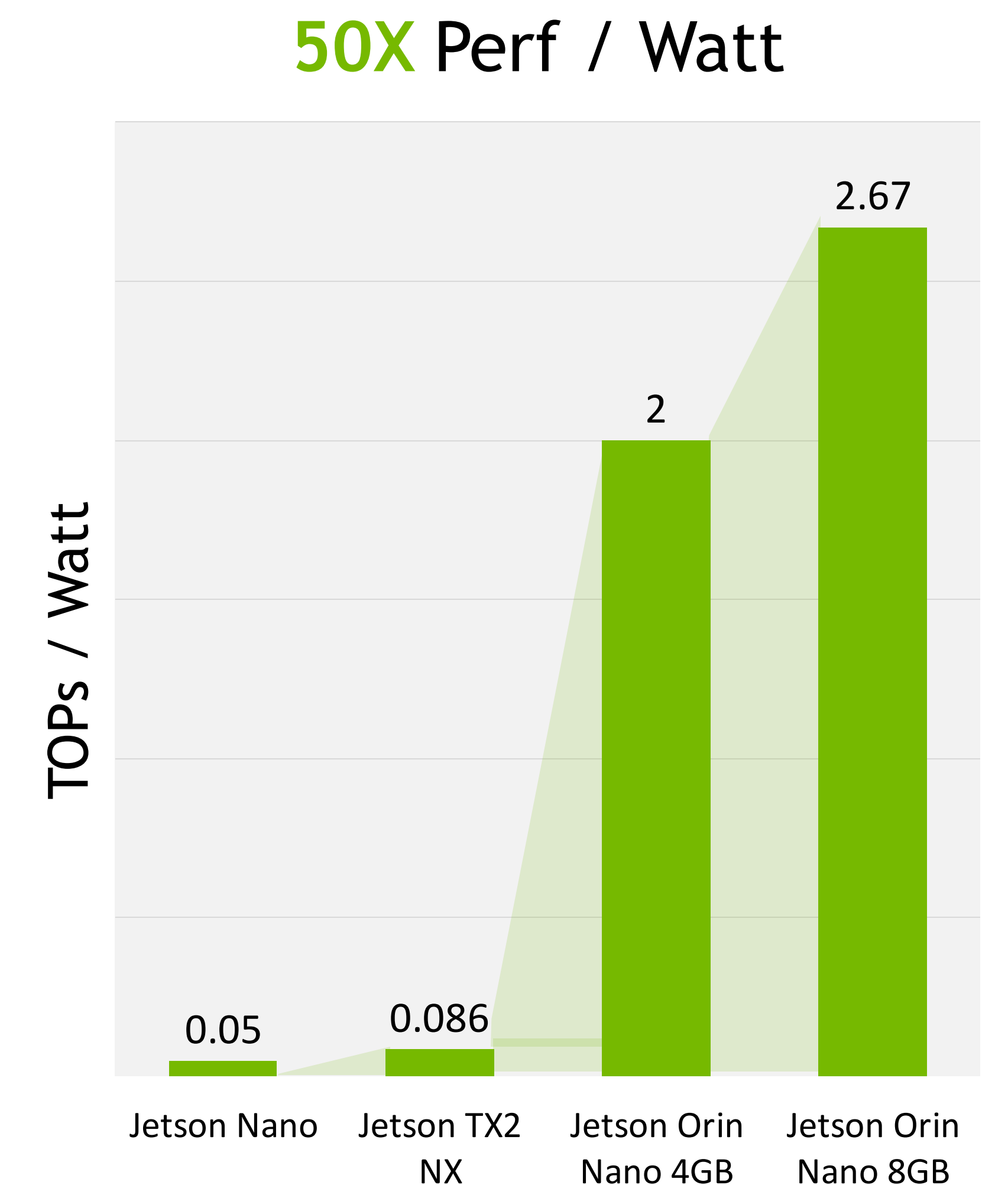
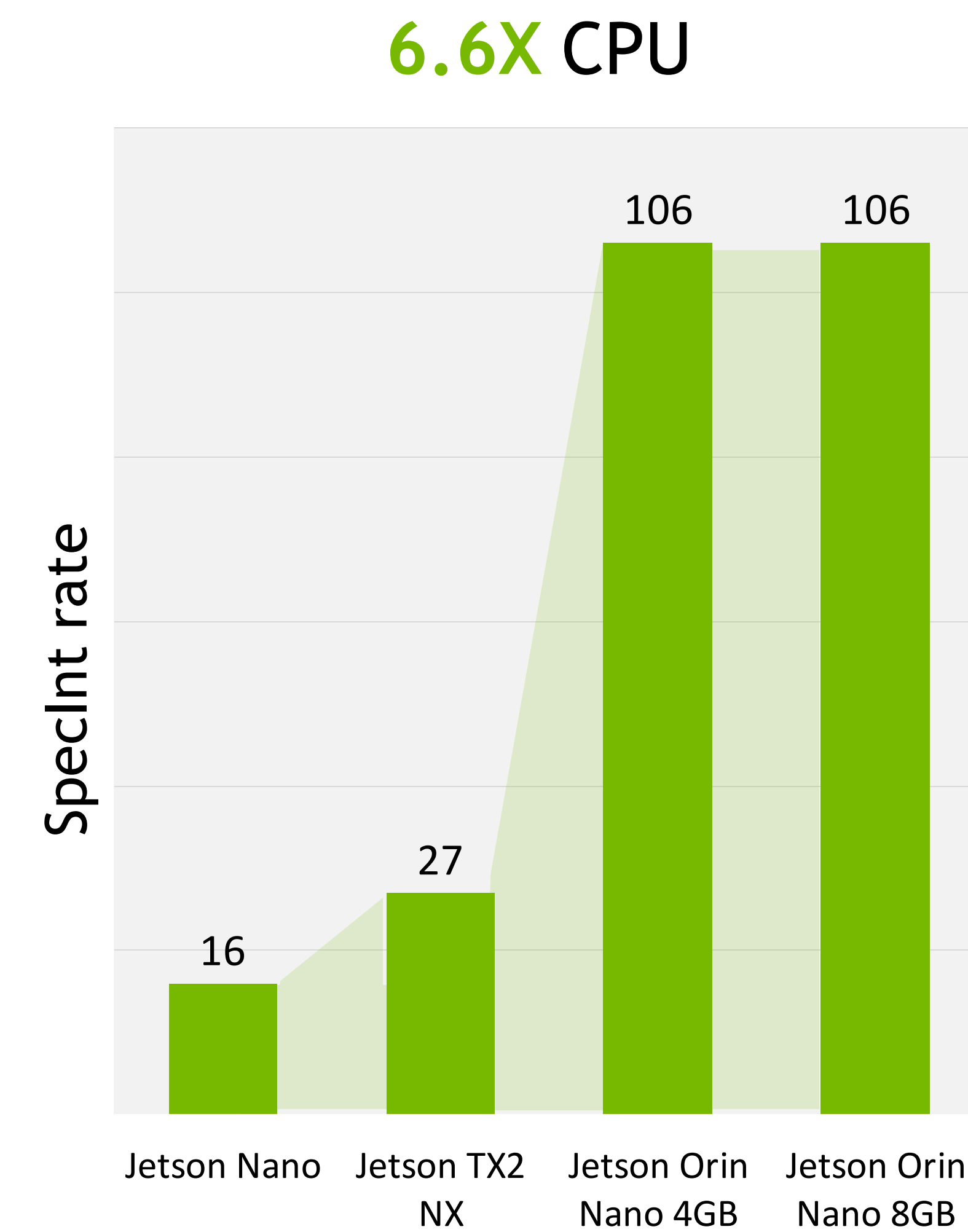
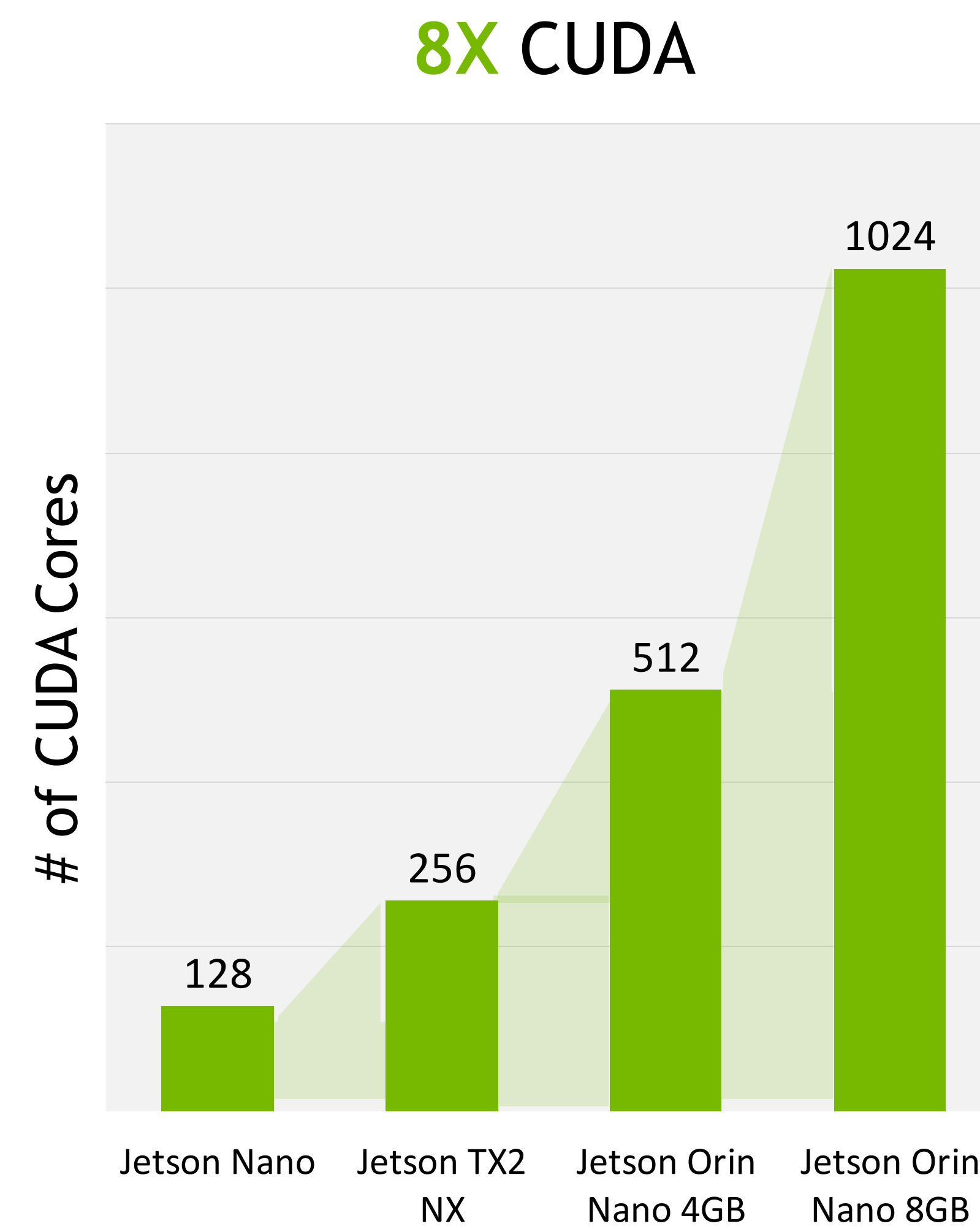
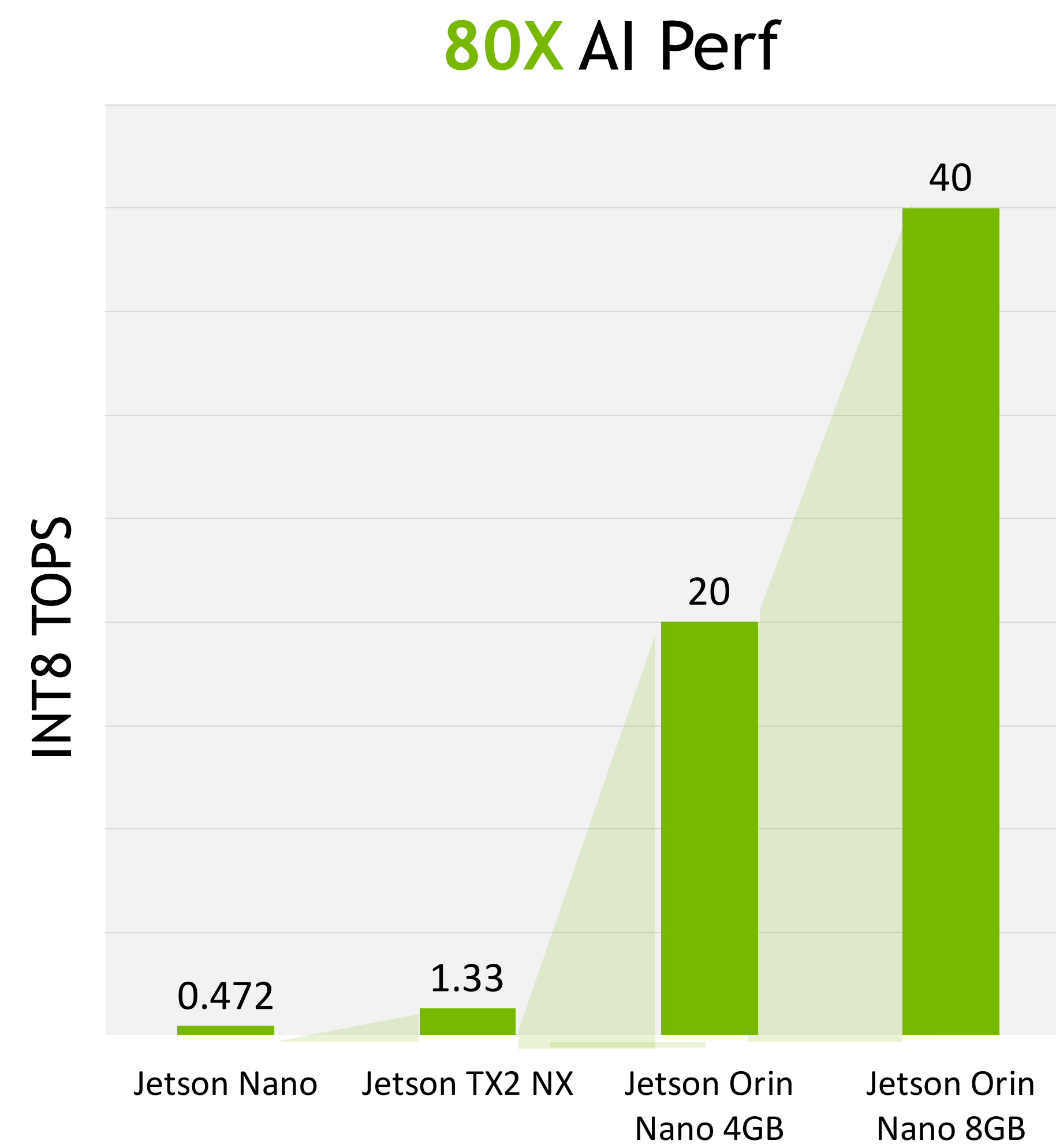
## High Speed & Sensor I/O

- Up to 7 Lanes PCIe Gen3
- 8 Lanes of MIPI CSI
- 3x 10Gbps USB 3.2
- 3x UART, 2x SPI, 2x I2S, 4x I2C, 1x CAN, DMIC & DSPK, PWM, GPIOs

*\*Orin Architecture from Jetson Orin Nano 8GB | Jetson Orin Nano 4GB has 2TPCs and 20 Sparse TOPs*









# NEW BASELINE FOR ENTRY LEVEL AI

Orin Nano raises the bar for AI at the edge

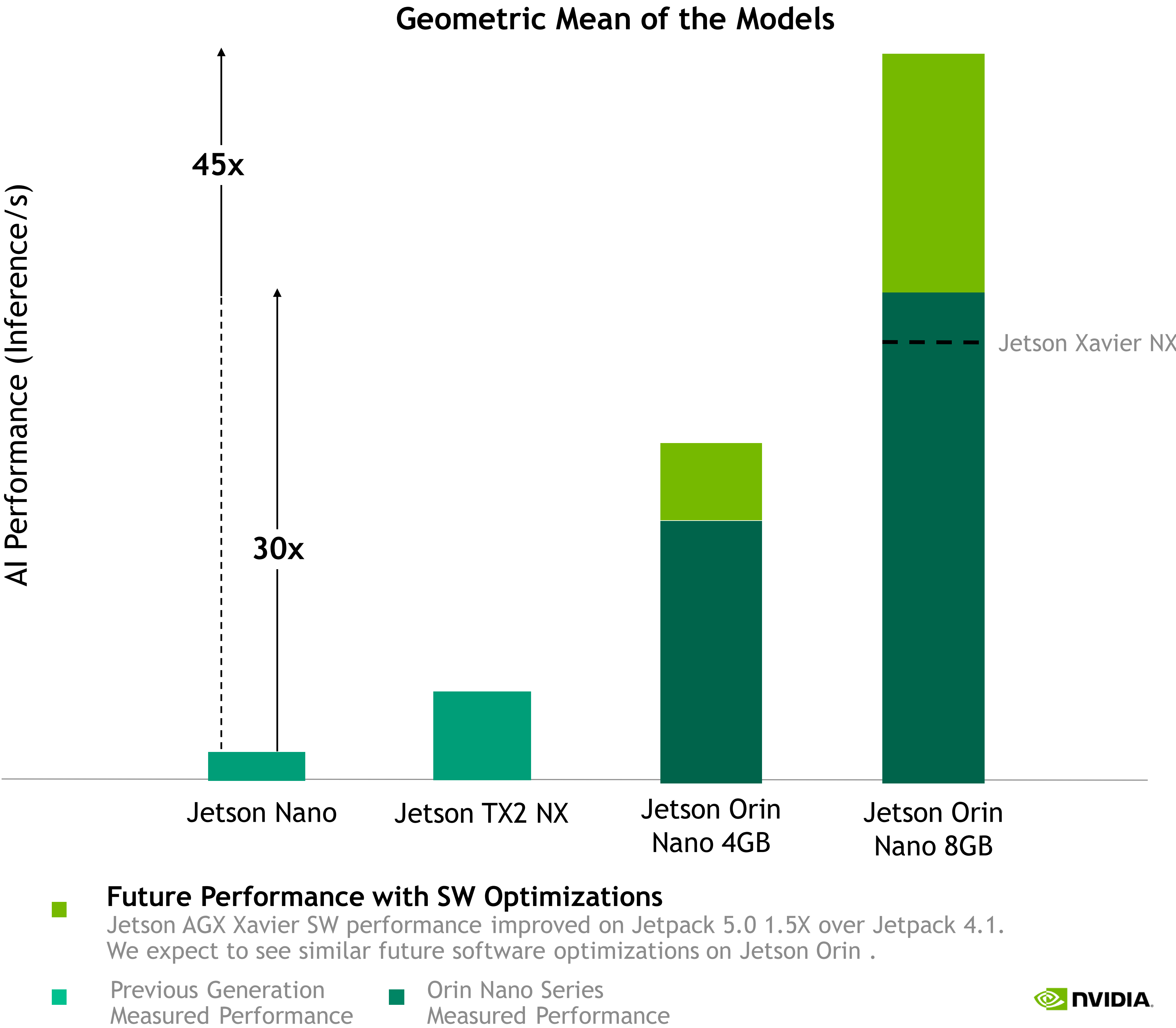


# NEW BASELINE FOR ENTRY LEVEL AI

Accelerated Computer Vision Models

Models*	Jetson Nano	Jetson TX2 NX	Jetson Orin Nano 4GB	Jetson Orin Nano 8GB
 PeopleNet ** (v2.3)	7	17	134	268
 PeopleNet ** (v2.5 unpruned )	2	5	57	116
 Action Recognition 2D	32	88	217	369
 Action Recognition 3D	1	3	13	23
 LPR	47	86	534	950
 Dashcam Net	11	26	198	399
 Bodypose Net	3	7	68	136
 Resnet 50	36	66	541	959

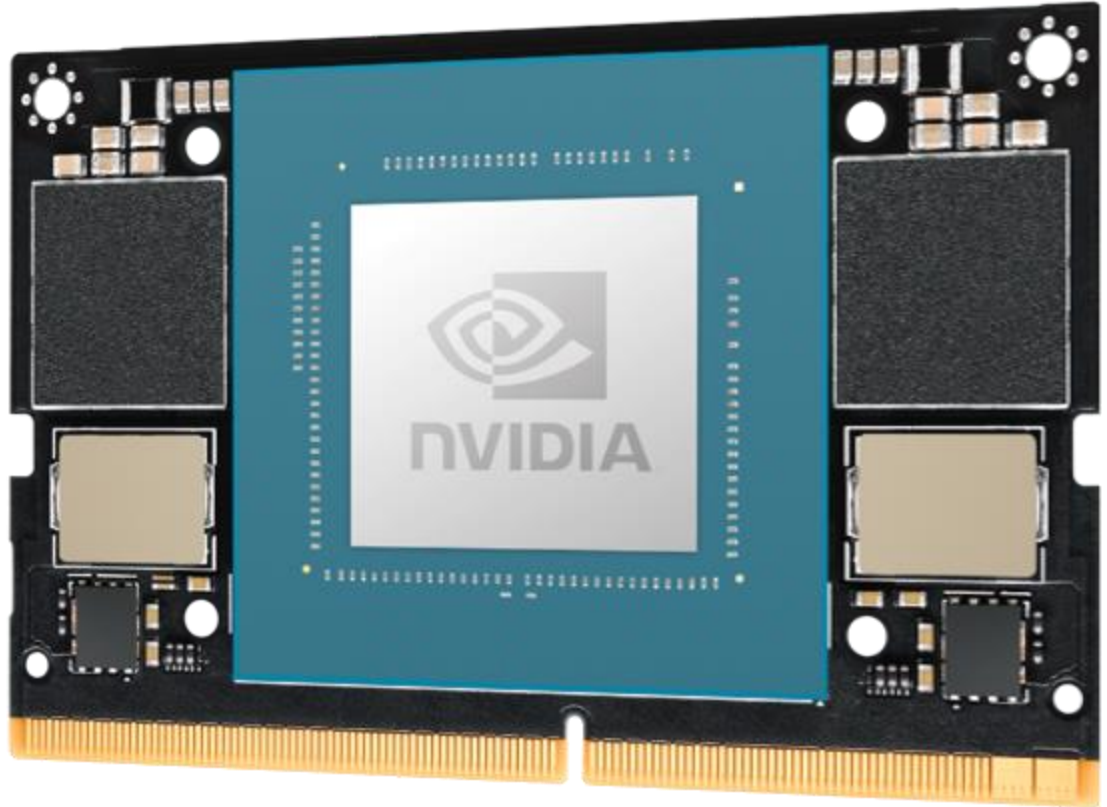
\* Dense Model Performance  
\*\* PeopleNet V2.5 (unpruned) has better accuracy compared to V2.3 thus the FPS is lower.





# JETSON ORIN NANO SERIES

	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



*\*Virtual Channel related camera information for Jetson Orin Nano is not final and subject to change.*

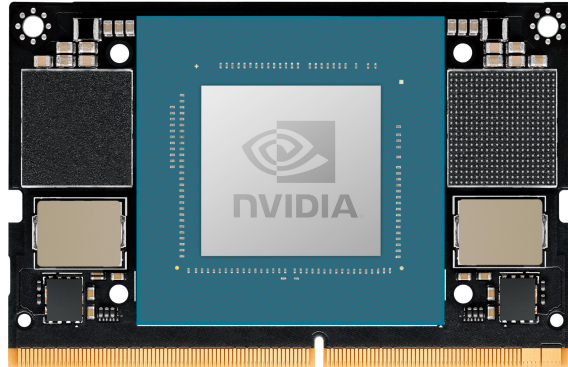
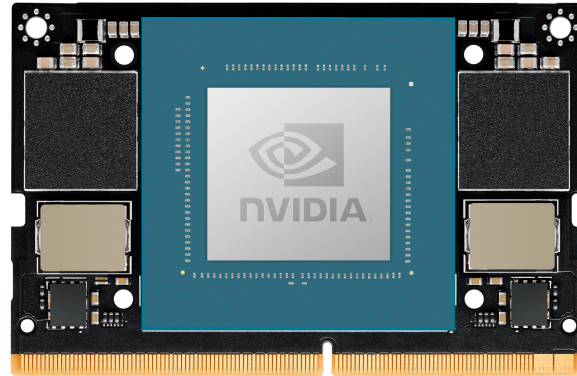
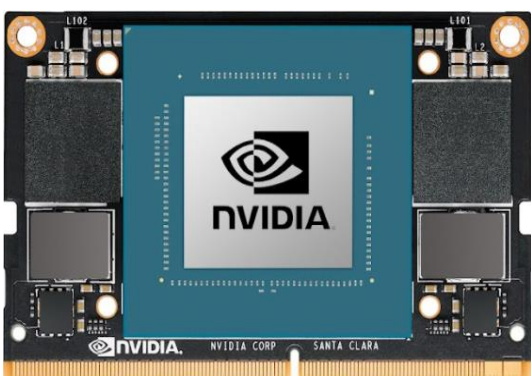
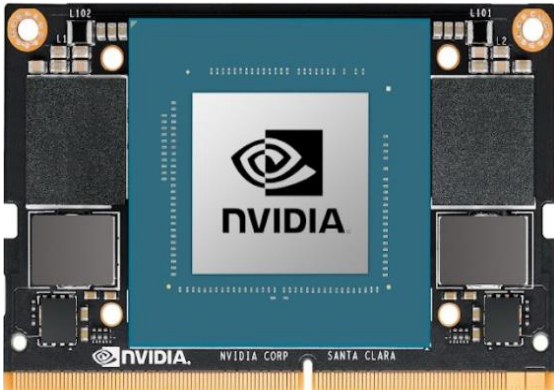
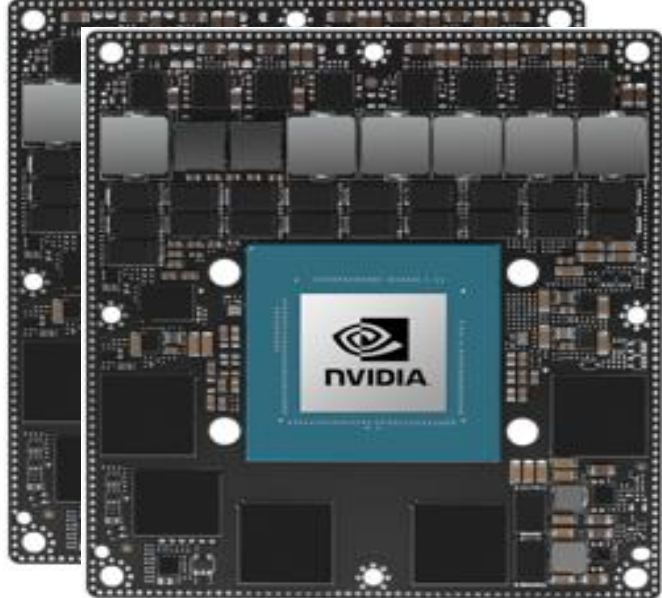
*\*\*Orin Nano and Orin NX series are pin and form factor compatible*



# THE JETSON FAMILY

For AI at the Edge and Autonomous Machines

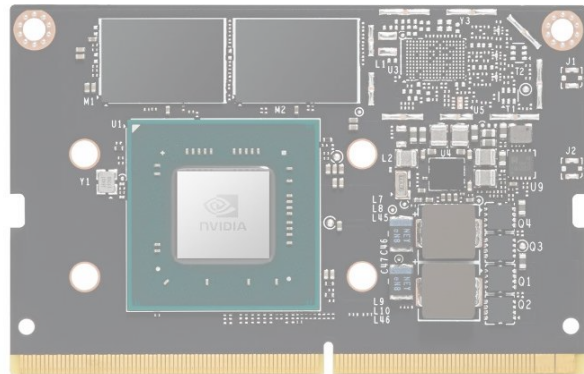
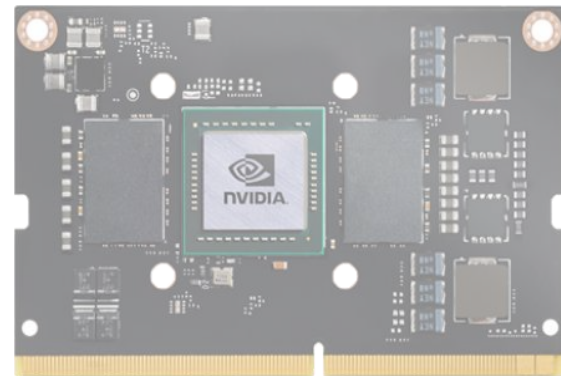
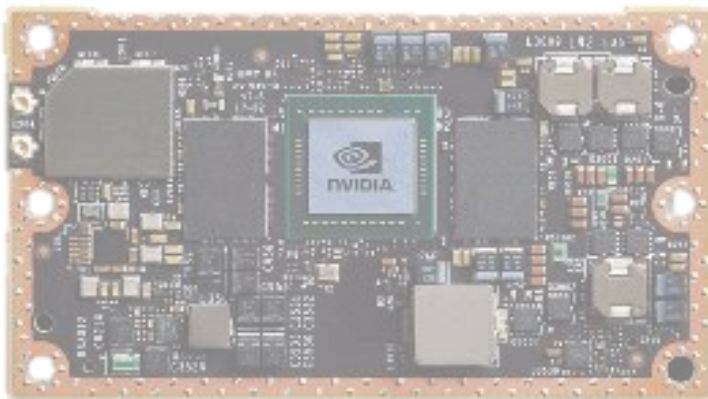
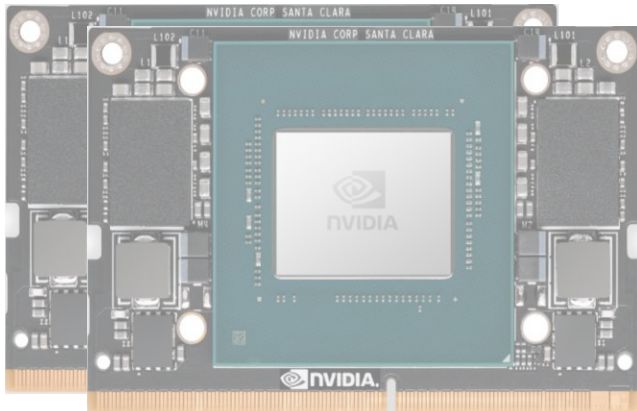
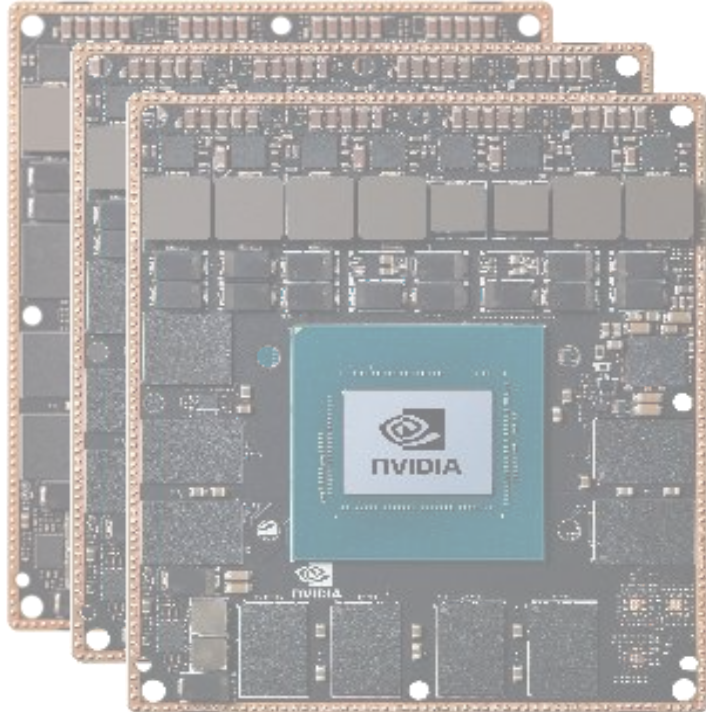
## Next-Gen: Jetson Orin

<b>JETSON Orin Nano 4GB</b> 20 TOPs (INT8)	<b>JETSON Orin Nano 8GB</b> 40 TOPs (INT8)	<b>JETSON Orin NX 8GB</b> 70 TOPs (INT8)	<b>JETSON Orin NX 16GB</b> 100 TOPs (INT8)	<b>JETSON AGX Orin Series</b> 275 TOPs (INT8)
				
5 - 10W \$199 45mm x 70mm	7 - 15W \$299 45mm x 70mm	10 - 20W \$399 45mm x 70mm	10 - 25W \$599 45mm x 70mm	15- 60W 32GB/64GB \$899/\$1599 100mm x 87mm

ENTRY

MAINSTREAM

AUTONOMOUS MACHINES

<b>JETSON NANO</b> 0.5 TFLOPS (FP16)	<b>JETSON TX2 NX</b> 1.33 TFLOPS (FP16)	<b>JETSON TX2 series</b> 1.33 TFLOPS (FP16)	<b>JETSON Xavier NX series</b> 21 TOPs (INT8)	<b>JETSON AGX Xavier Series</b> 32 TOPs (INT8)
				
5 - 10W \$99 45mm x 70mm	7.5 - 15W \$149 45mm x 70mm	7.5 - 15W* \$399 50mm x 87mm	10 - 20W 8GB/16GB \$399/\$499 45mm x 70mm	10 - 30W** 32GB/64GB \$899/\$1299* 100mm x 87mm

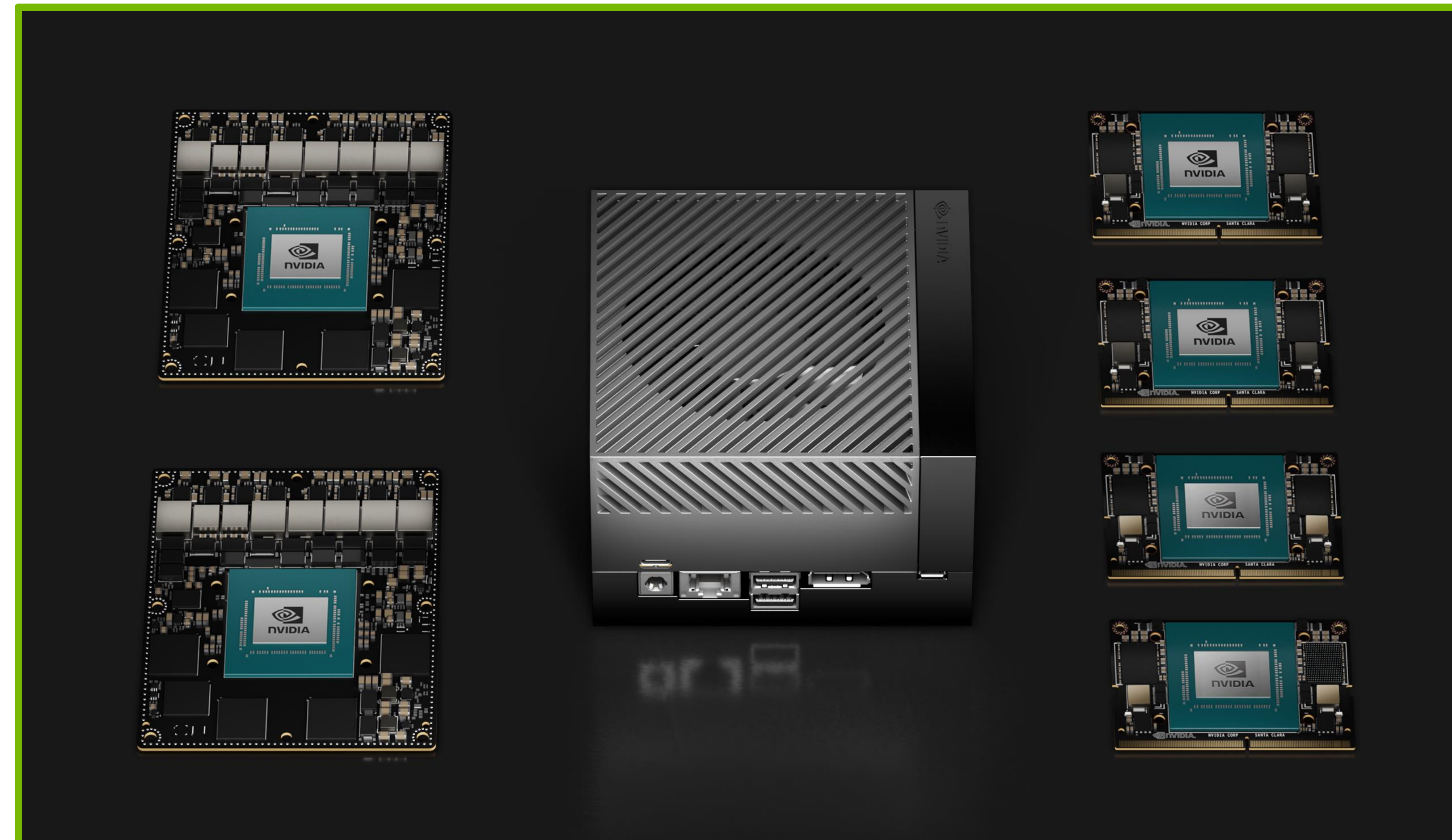
Full specs at [developer.nvidia.com/jetson](https://developer.nvidia.com/jetson)

\*TX2i: 10-20W, \$749    \*\* Jetson AGX Xavier Industrial 20W-40W, \$1249



# START YOUR DEVELOPMENT TODAY

The Power of One. One Devkit. Six Options.



## JETSON AGX ORIN DEVELOPER KIT

5W - 60W

275 TOPS (INT8)

110mm x 110mm x 71.65mm

\$1999

The AGX Orin developer kit can **emulate** the performance of the AGX Orin series, the Orin NX series, and the Orin Nano series.

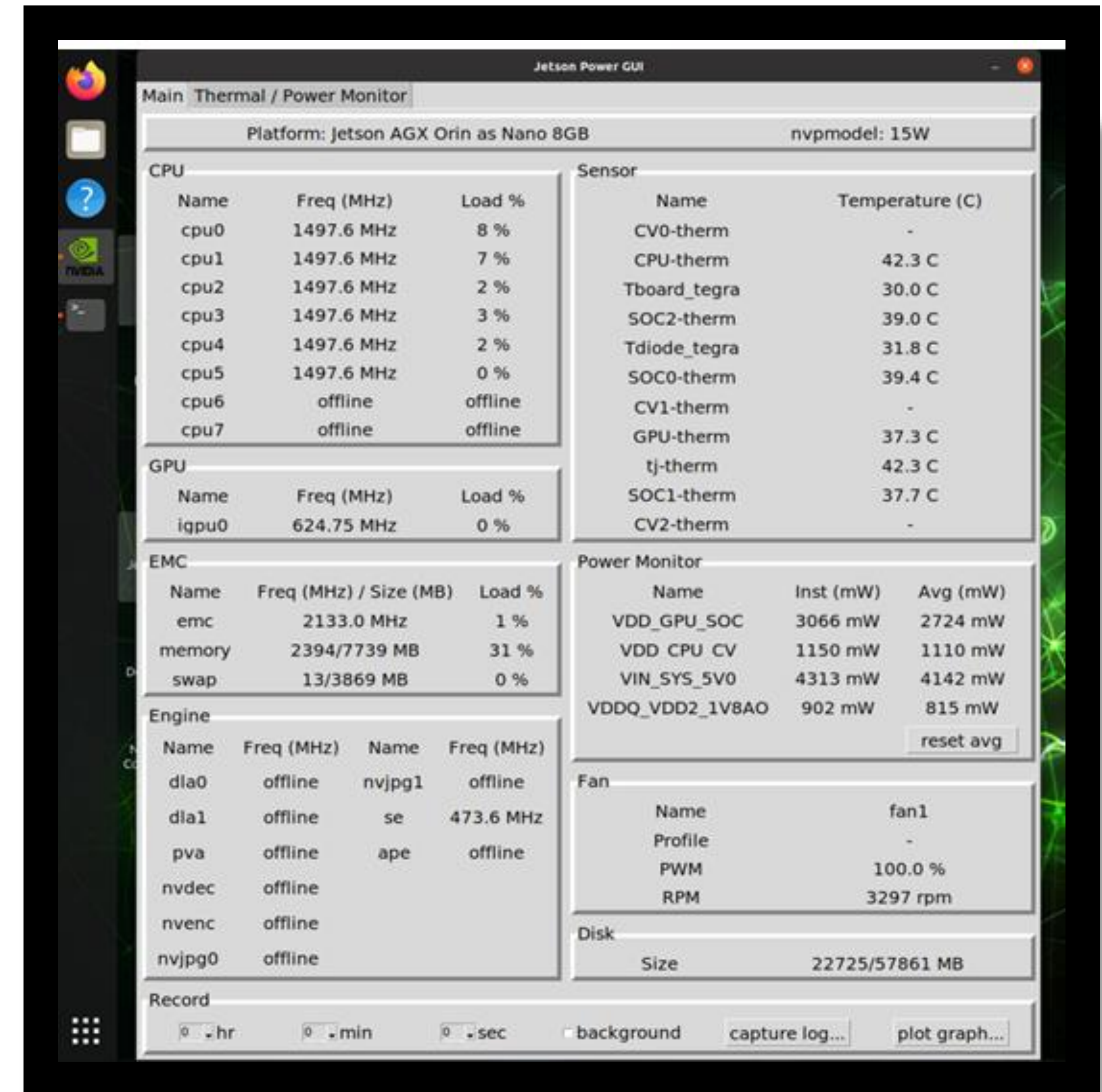
*The Jetson AGX Orin Developer Kit will be available with 32GB of memory.  
NVIDIA recommends to use developer kts for only development purposes. For production, customers should leverage our production modules, have been tested for production environments.*



# HOW TO USE EMULATION MODE?

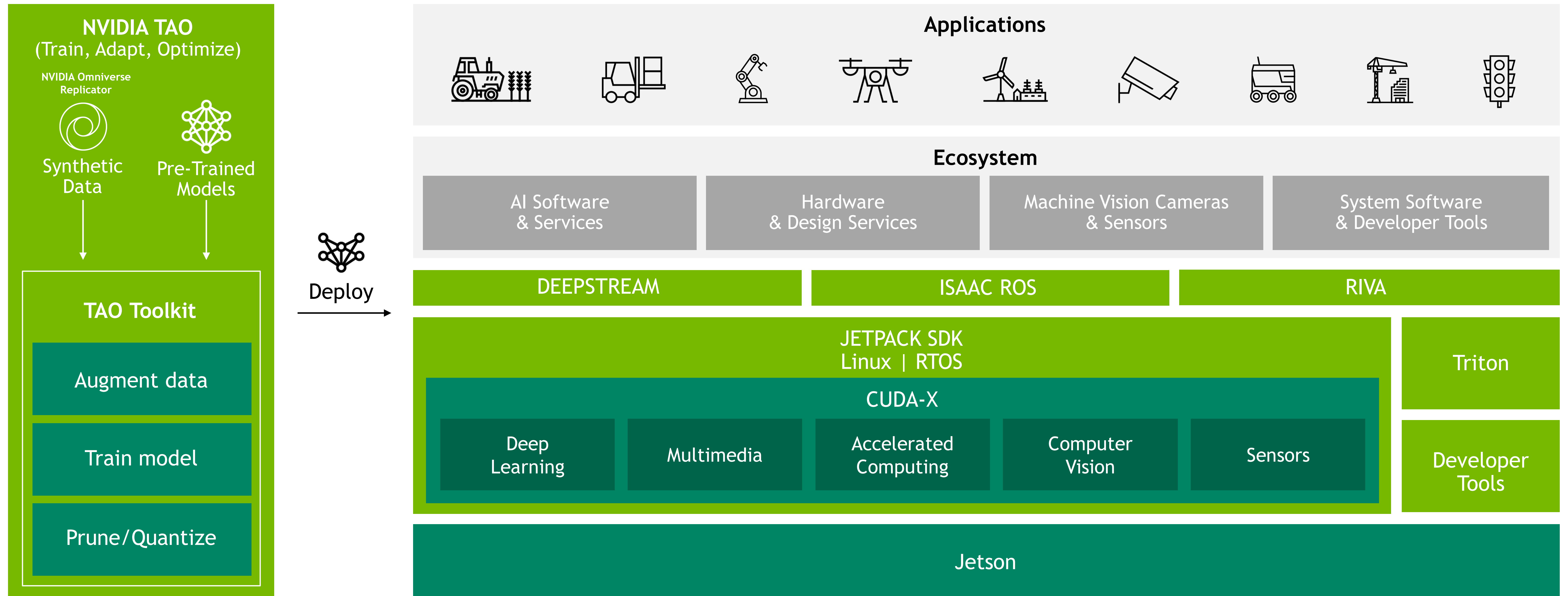
## Three Simple Steps

1. Use the flash.sh command line tool to flash a developer kit in Force Recovery mode with the appropriate options
  - `sudo ./flash.sh jetson-agx-orin-devkit-as-on8gb mmcblk0p1`
  - `sudo ./flash.sh jetson-agx-orin-devkit-as-on4gb mmcblk0p1`
2. Go through the initial bootup and configuration, and install the rest of the JetPack components
3. Get started with your development! Check out the Power GUI to see the unit in action.





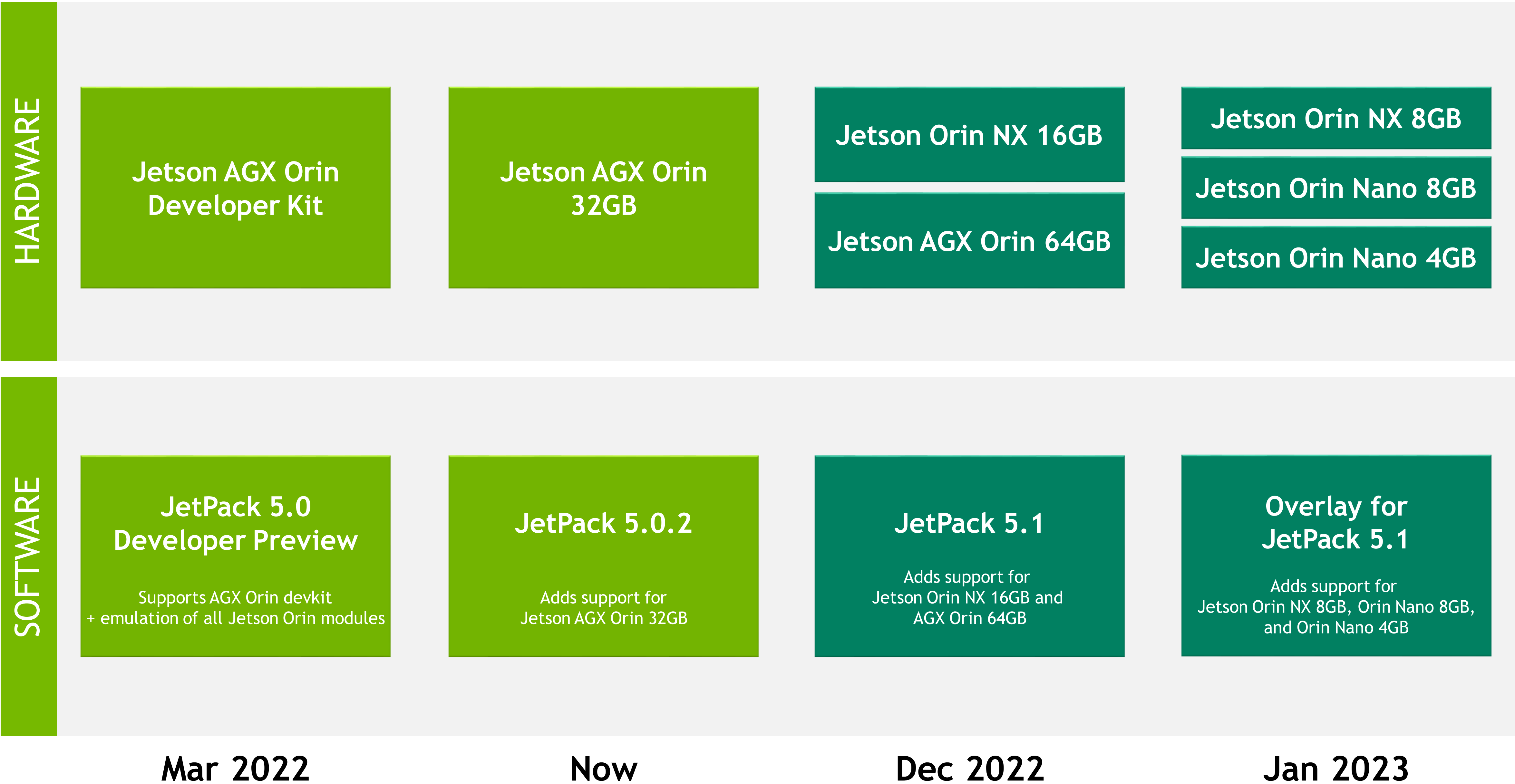
# JETSON SOFTWARE





# JETSON ORIN ROADMAP

■ Released ■ In Development



Products in development and planning are subject to change.







# JETSON MODULES – SPEC COMPARISON (1 OF 4)

	NANO	ORIN NANO 4GB	TX2 NX	ORIN NANO 8GB	XAVIER NX*	ORIN NX 8GB	ORIN NX 16GB	AGX XAVIER**	AGX ORIN 32GB	AGX ORIN 64GB
GPU ARCH	MAXWELL	AMPERE	PASCAL	AMPERE	VOLTA	AMPERE	AMPERE	VOLTA	AMPERE	AMPERE
GPU CORES	128 CUDA Cores	512 CUDA Cores 16 Tensor Cores	256 CUDA Cores	1024 CUDA Cores 32 Tensor Cores	384 CUDA Cores 48 Tensor Cores	1024 CUDA Cores 32 Tensor Cores	1024 CUDA Cores 32 Tensor Cores	512 CUDA Cores 64 Tensor Cores	1792 CUDA Cores 56 Tensor Cores	2048 CUDA Cores 64 Tensor Cores
GPU Max Frequency	921 MHz	625 MHz	1300 MHz	625 MHz	1100 MHz	765 MHz	918 MHz	1370 MHz	931 MHz	1301 MHz
PEAK AI PERF	0.5 TFLOPS (Dense)	20 TOPS (Sparse) 10 TOPS (Dense)	1.3 TFLOPS (Dense)	40 TOPS (Sparse) 20 TOPS (Dense)	21 TOPS (Dense)	70 TOPS (Sparse) 35 TOPS (Dense)	100 TOPS (Sparse) 50 TOPS (Dense)	32 TOPS (Dense)	200 TOPS (Sparse) 100 TOPS (Dense)	275 TOPS (Sparse) 138 TOPS (Dense)
CPU	4X A57 1.5 GHz	6X A78 1.5 GHz	4X A57 + 2X D15 2.0 GHz	6X A78 1.5 GHz	6X Carmel 2.0GHz	6X A78 2.0 GHz	8X A78 2.0 GHz	8X Carmel 2.2 GHz	8X A78 2.2 GHz	12X A78 2.2 GHz
SPEC int 2k6	9	25	14	25	18	25	25	22	25	25
SPEC int rate	16	106	27	106	61	130	167	140	177	259
DLA	NA	NA	NA	NA	2X DLA v1	1X DLA v2	2X DLA v2	2X DLA v1	2X DLA v2	2X DLA v2
VISION ACC	NA	NA	NA	NA	PVA v1	PVA v2	PVA v2	PVA v1	PVA v2	PVA v2
DRAM SIZE	4GB	4GB	4GB	8GB	8GB/16GB	8GB	16GB	32GB/64GB	32GB	64GB
DRAM BW	25 GB/s	34 GB/s	51 GB/s	68 GB/s	60 GB/s	102 GB/s	102 GB/s	137 GB/s	204 GB/s	204 GB/s
MECHANICAL	70x45 mm 260 pins	70x45 mm 260 pins	70x45 mm 260 pins	70x45 mm 260 pins	70x45 mm 260 pins	70x45 mm 260 pins	70x45 mm 260 pins	100x87 mm 699 pins	100x87 mm 699 pins	100x87 mm 699 pins
MODULE POWER	5W   10W	5W   10W	7W   15W	7W   15W	10W   15W   20W	10W   15W   20W	10W   15W   25W	15W   30W	15W   30W   40W	15W   30W   50W   MAXPower 60W

\* Refers to both Jetson Xavier NX and Jetson Xavier NX 16GB

\*\* \* Refers to both Jetson AGX Xavier and Jetson AGX Xavier 64GB

Specifications for Ampere generation products is preliminary and subject to Change



# JETSON MODULES – SPEC COMPARISON (2 OF 4)

	NANO	ORIN NANO 4GB	TX2 NX	ORIN NANO 8GB	XAVIER NX*	ORIN NX 8GB	ORIN NX 16GB	AGX XAVIER**	AGX ORIN 32GB	AGX ORIN 64GB
PCIe	1 x4 Gen2	3 x1 Gen3 1 x4 Gen3	1 x1 Gen2 1 x2 Gen2	3 x1 Gen3 1 x4 Gen3	1 x1 Gen3 1 x4 Gen4	3 x1 Gen4 1 x4 Gen4	3 x1 Gen4 1 x4 Gen4	1 x8 Gen4 1 x4 Gen4 1 x2 Gen4 2 x1 Gen4	2 x8 Gen4 1 x4 Gen4 2 x1 Gen4	2 x8 Gen4 1 x4 Gen4 2 x1 Gen4
USB	1x USB 3.1 (5 Gbps) 3x USB 2.0	3x USB 3.2 gen2 (10 Gbps) 3x USB 2.0	1x USB 3.1 (5 Gbps) 3x USB 2.0	3x USB 3.2 gen2 (10 Gbps) 3x USB 2.0	1x USB 3.1 (10 Gbps) 3x USB 2.0	3x USB 3.2 gen2 (10 Gbps) 3x USB 2.0	3x USB 3.2 gen2 (10 Gbps) 3x USB 2.0	3x USB 3.1 (10 Gbps) 4x USB 2.0	3x USB 3.2 gen2 (10 Gbps) 4x USB 2.0	3x USB 3.2 gen2 (10 Gbps) 4x USB 2.0
ETHERNET	1x GbE	1x GbE	1x GbE	1x GbE	1x GbE	1x GbE	1x GbE	1x GbE	1x GbE 1x 10GbE	1x GbE 1x 10GbE
CAMERA	12 lanes MIPI CSI-2 D-PHY 1.1 (18 Gbps)	8 lanes MIPI CSI-2 D-PHY 1.2 (20 Gbps) Use GMSL for 8x cameras	12 lanes MIPI CSI-2 D-PHY 1.2 (30 Gbps)	8 lanes MIPI CSI-2 D-PHY 1.2 (20 Gbps) Use GMSL for 8x cameras	12 lanes MIPI CSI-2 D-PHY 1.2 (30 Gbps)	8 lanes MIPI CSI-2 D-PHY 1.2 (20 Gbps) Use GMSL for 8x cameras	8 lanes MIPI CSI-2 D-PHY 1.2 (20 Gbps) Use GMSL for 8x cameras	16 lanes MIPI CSI-2 D-PHY 1.2 (40 Gbps) CPHY 1.1 (62 Gbps)	16 lanes MIPI CSI-2 D-PHY 2.1 (40 Gbps) C-PHY 2.0 (164 Gbps)	16 lanes MIPI CSI-2 D-PHY 2.1 (40 Gbps) C-PHY 2.0 (164 Gbps)
STORAGE	16GB eMMC	External NVMe Using x1 PCIe	16GB eMMC	External NVMe Using x1 PCIe	16GB eMMC	External NVMe Using x1 PCIe	External NVMe Using x1 PCIe	32GB eMMC	64GB eMMC	64GB eMMC
DISPLAY	2x 4K30	1 multi-mode (4K30,2x1080p60 ) DP1.2 + MST, HDMI1.4, eDP 1.4	2x 4K60	1 multi-mode (4K30,2x1080p60) DP1.2 + MST, HDMI1.4, eDP 1.4	2x 4K60	1 multi-mode (8K60, 2x4K60) DP1.4a + MST, HDMI2.1, eDP 1.4	1 multi-mode (8K60, 2x4K60) DP1.4a + MST, HDMI2.1, eDP 1.4	3x 4K60	1 multi-mode (8K60, 2x4K60) DP1.4a + MST, HDMI2.1, eDP 1.4	1 multi-mode (8K60, 2x4K60) DP1.4a + MST, HDMI2.1, eDP 1.4

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

Specifications for Ampere generation products is preliminary and subject to Change



# JETSON MODULES – SPEC COMPARISON (3 OF 4)

	NANO	ORIN NANO 4GB	TX2 NX	ORIN NANO 8GB	XAVIER NX*	ORIN NX 8GB	ORIN NX 16GB	AGX XAVIER**	AGX ORIN 32GB	AGX ORIN 64GB
VIDEO DECODE	<b><u>H.265/H.264</u></b> 1x4K60 2x4K30 4x1080p60 4 x1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>H.264</u></b> 1x4K30 3x1080p60 7x1080p30 <b><u>VP9</u></b> 10x1080p30	<b><u>H.265/H.264</u></b> 2x4K60 4x4K30 7x1080p60 14x1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>H.264</u></b> 1x4K30 3x1080p60 7x1080p30 <b><u>VP9</u></b> 10x1080p30	<b><u>H.265</u></b> 2x8K30 6x4K60 12x4K30 22x1080p60 44x1080p30 <b><u>H.264</u></b> 2x4K60 6x4K30 10x1080p60 22x1080p30 <b><u>VP9</u></b> 2x8K30 4x4K60 8x4K30 14x1080p60 30x1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x8K30 2x4K60 4x4K30 9x1080p60 18x1080p30 <b><u>H.264</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>VP9</u></b> 15x1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x8K30 2x4K60 4x4K30 9x1080p60 18x1080p30 <b><u>H.264</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>VP9</u></b> 15x1080p30	<b><u>H.265</u></b> 2x8Kp30 6x4K60 12x4K30 26x1080p60 52x1080p30 <b><u>H.264</u></b> 4x4K60 8x4K30 16x1080p60 32x1080p30 <b><u>VP9</u></b> 4x4K60 8x4K30 18x1080p60 38x 1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x8K30 2x4K60 4x4K30 9x1080p60 18x1080p30 <b><u>H.264</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>VP9</u></b> 15x1080p30	<b><u>AV1</u></b> 1x8K30 3x4K60 6x4K30 12x1080p60 24x1080p30 <b><u>H.265</u></b> 1x8K30 1x8K30 3x4K60 7x4K30 11x1080p60 22x1080p30 <b><u>H.264</u></b> 1x4K60 3x4K30 6x1080p60 13x1080p30 <b><u>VP9</u></b> 18x1080p30
VIDEO ENCODE	<b><u>H.265/H.264</u></b> 1x4K30 2x1080p60 4x1080p30	<b><u>No NVENC</u></b> Video Encode supported via CPU	<b><u>H.265</u></b> 1x4K60 3x4K30 4x1080p60 8x1080p30 <b><u>H.264</u></b> 1x4K60 3x4K30 7x1080p60 14x1080p30	<b><u>No NVENC</u></b> Video Encode supported via CPU	<b><u>H.265</u></b> 2x4K60 4x4K30 10x1080p60 22x1080p30 <b><u>H.264</u></b> 2x4K60 4x4K30 10x1080p60 20x108p30 <b><u>VP9</u></b> 2x4K30 6x1080p60 14x108p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>H.264</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x4K60 2x4K30 5x1080p60 11x1080p30 <b><u>H.264</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30	<b><u>H.265</u></b> 4x4K60 8x4K30 16x1080p60 32x1080p30 <b><u>H.264</u></b> 4x4K60 8x4K30 14x1080p60 30x1080p30 <b><u>VP9</u></b> 2x4K60 4x4K30 10x1080p60 20x1080p30	<b><u>AV1</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30 <b><u>H.265</u></b> 1x4K60 3x4K30 6x1080p60 12x1080p30 <b><u>H.264</u></b> 1x4K60 2x4K30 5x1080p60 10x1080p30	<b><u>AV1</u></b> 2x4K60 4x4K30 7x1080p60 15x1080p30 <b><u>H.265</u></b> 2x4K60 4x4K30 8x1080p60 16x1080p30 <b><u>H.264</u></b> 1x4K60 3x4K30 7x1080p60 14x1080p30

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

Specifications for Ampere generation products is preliminary and subject to Change



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	NANO	ORIN NANO 4GB	TX2 NX	ORIN NANO 8GB	XAVIER NX*	ORIN NX 8GB	ORIN NX 16GB	AGX XAVIER**	AGX ORIN 32GB	AGX ORIN 64GB
OTHER I/O	3xUART 2xSPI  2xI2S 4xI2C  DMIC DSPK  PWM GPIOs	3xUART 2x SPI  2xI2S 4xI2C  1xCAN DMIC  DSPK PWM  GPIOs	3x UART  2x SPI   4x I2S  4x I2C 1x CAN  DMIC DSPK  PWM  GPIOs	3xUART 2x SPI  2xI2S 4xI2C  1xCAN DMIC  DSPK PWM  GPIOs	3xUART 2xSPI 2 xI2S 4xI2C 1xCA N DMIC  DSPK  PWM GPIOs	3xUART 2x SPI  2xI2S 4xI2C  1xCAN DMIC  DSPK PWM  GPIOs	3xUART 2x SPI  2xI2S 4xI2C  1xCAN DMIC  DSPK PWM  GPIOs	5xUART 3xSPI  4xI2S 8xI2C  2xCAN PWM  DMIC GPIOs	4x UART 3x SPI  4x I2S  8x I2C  2x CAN PWM  DMIC DSPK  GPIOs	4x UART 3x SPI  4x I2S  8x I2C  2x CAN PWM  DMIC DSPK  GPIOs
SD/SDIO	1x SD Card/SDIO	~	1x SD Card/SDIO	~	1x SD Card/SDIO	~	~	1x SD Card/SDIO	1x SD Card/SDIO	1x SD Card/SDIO

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



