



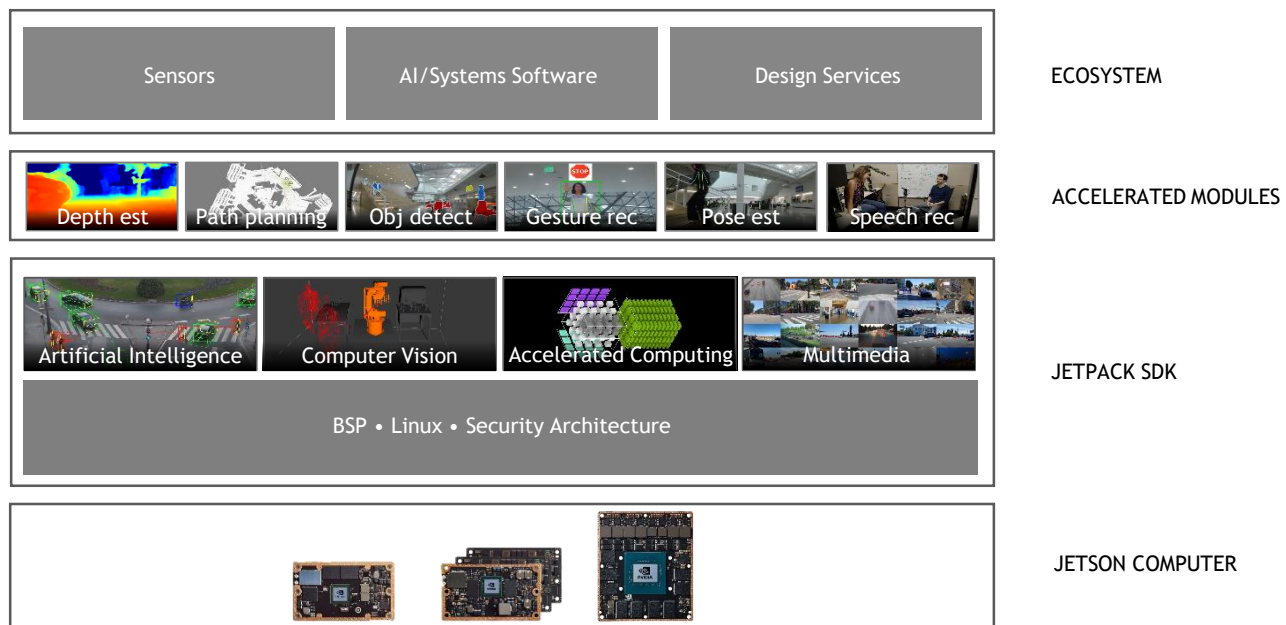
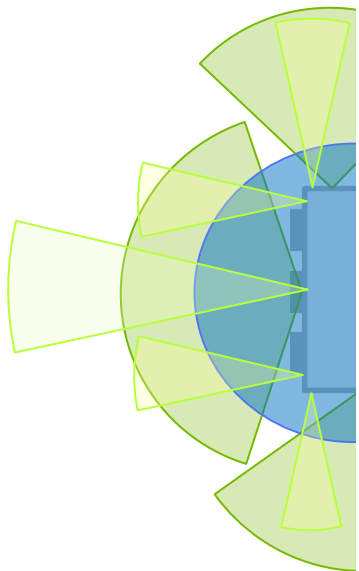
# JETSON NANO

NVIDIA Confidential - Shared under NDA

# NVIDIA JETSON

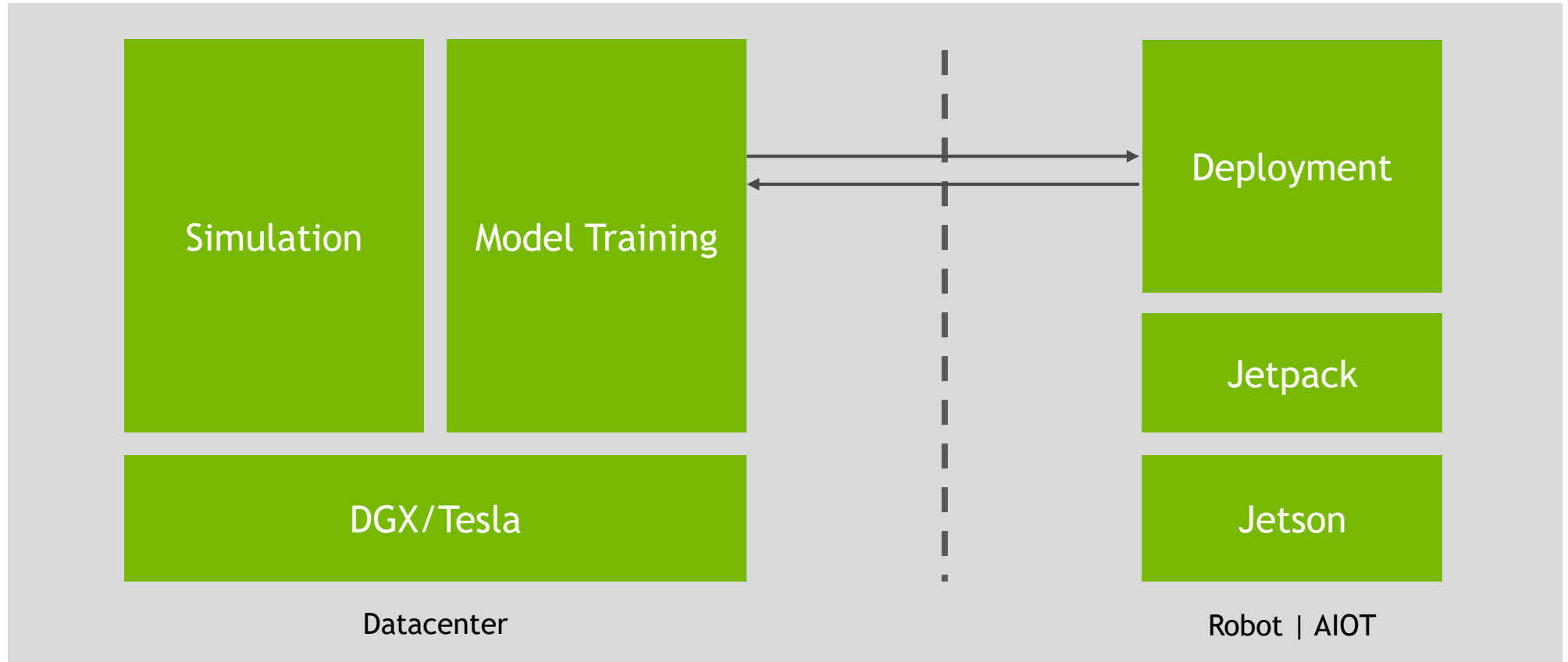
## SOFTWARE-DEFINED AUTONOMOUS MACHINES

Powerful and efficient AI, CV, HPC | Rich Software Development Platform  
Open Platform | 200K Developers



# NVIDIA AI PLATFORM

From data center to machines





# JETSON SUCCESS STORIES



Industrial



Aerospace/Defense



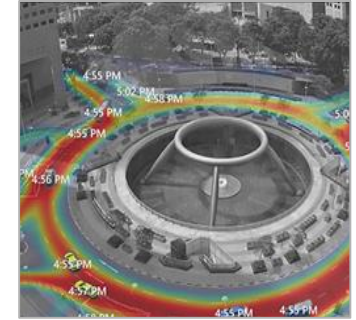
Healthcare



Construction



Agriculture



Smart City



Retail



Logistics



Inventory Mgmt



Delivery



Inspection



Service

# MASS-MARKET EDGE SYSTEMS NEED AI



NETWORK VIDEO RECORDER  
200 million 1080p streams



MACHINE VISION/AOI  
1 trillion product units per  
year require visual inspection



HOME/SERVICE ROBOTS  
175 billion hours per year  
on household chores (US)



AIOT  
80% of Enterprise IOT  
projects will use AI by 2022

# ANNOUNCING: JETSON NANO

Small, low-power AI Computer

128 CUDA Cores | 4 Core CPU

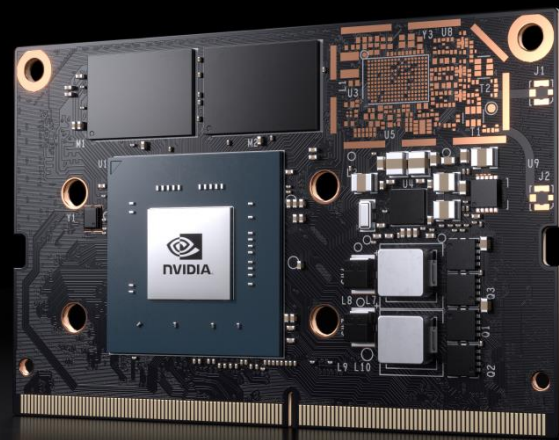
4 GB Memory

472 GFLOPs

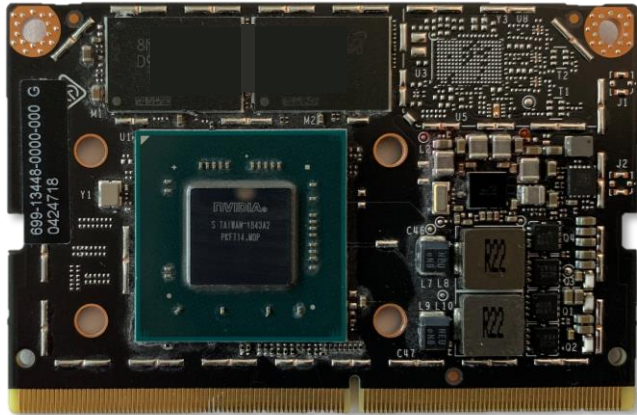
70x45mm

5W | 10W

\$129

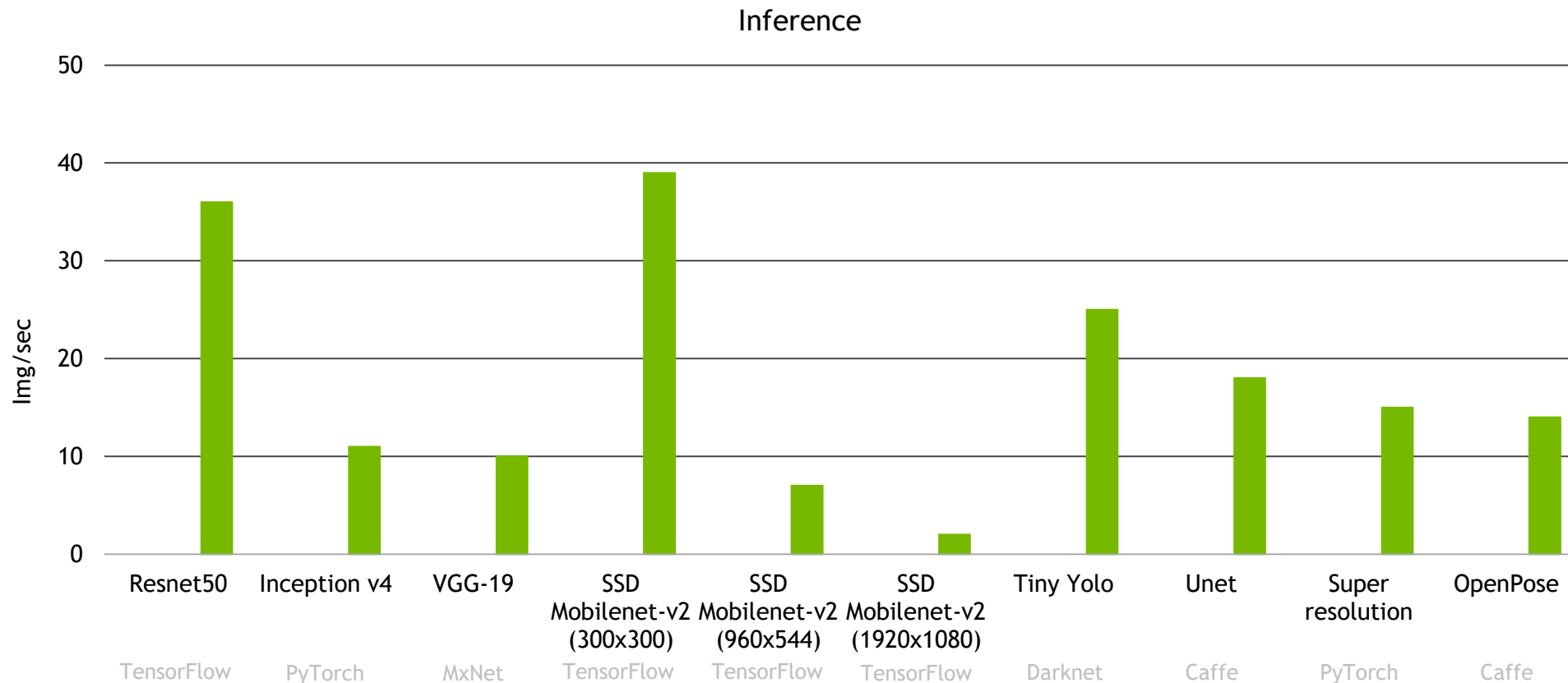


# JETSON NANO SPECIFICATIONS



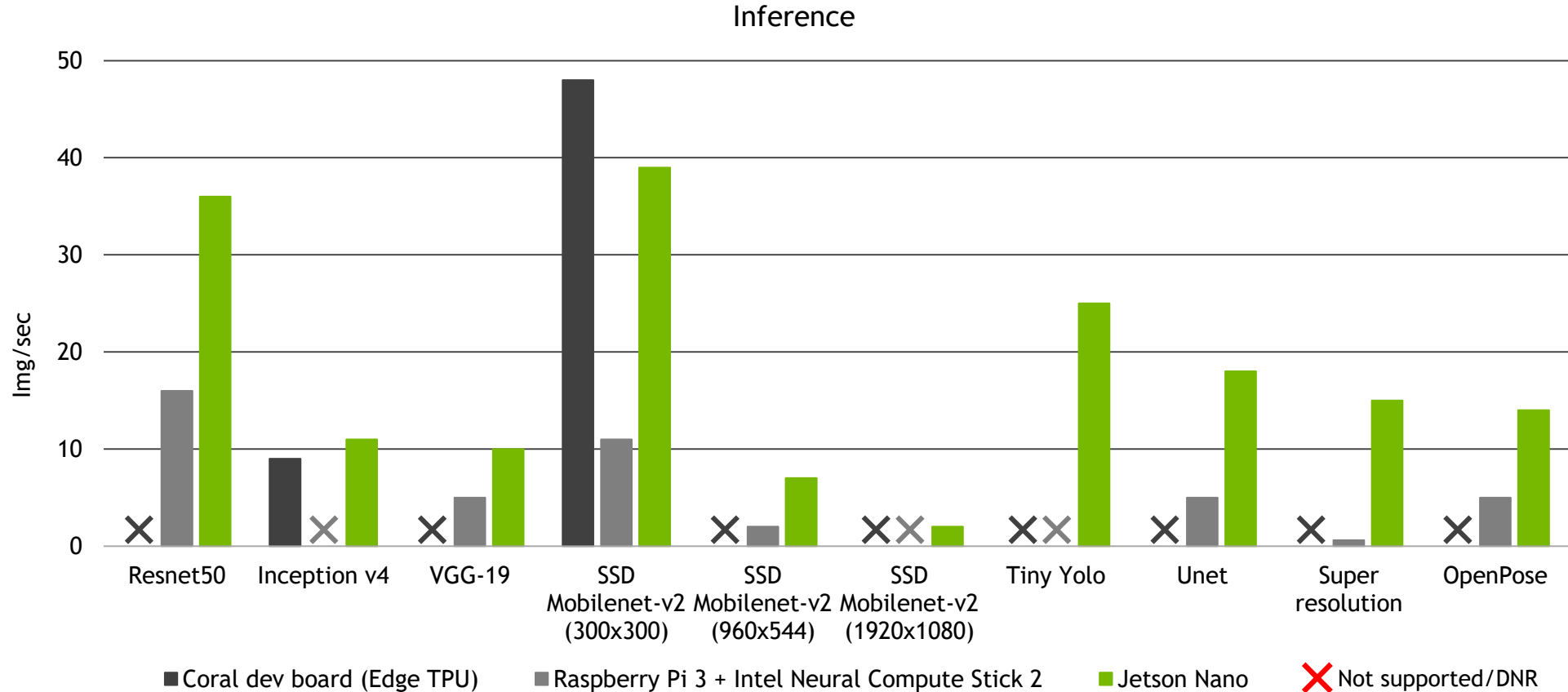
<b>GPU</b>	128 Core Maxwell 472 GFLOPs (FP16)
<b>CPU</b>	4 core ARM A57 @ 1.43 GHz
<b>Memory</b>	4 GB 64 bit LPDDR4 25.6 GB/s
<b>Storage</b>	16 GB eMMC
<b>Video Encode</b>	4K @ 30   4x 1080p @ 30   8x 720p @ 30 (H.264/H.265)
<b>Video Decode</b>	4K @ 60   2x 4K @ 30   8x 1080p @ 30   16x 720p @ 30   (H.264/H.265)
<b>Camera</b>	12 (3x4 or 4x2) MIPI CSI-2 DPHY 1.1 lanes (1.5 Gbps)
<b>Display</b>	HDMI 2.0 or DP1.2   eDP 1.4   DSI (1 x2) 2 simultaneous
<b>UPHY</b>	1 x1/2/4 PCIE 1 USB 3.0
<b>Other I/Os</b>	1xSDIO / 2xSPI / 3xI2C / UART / I2S / GPIOs

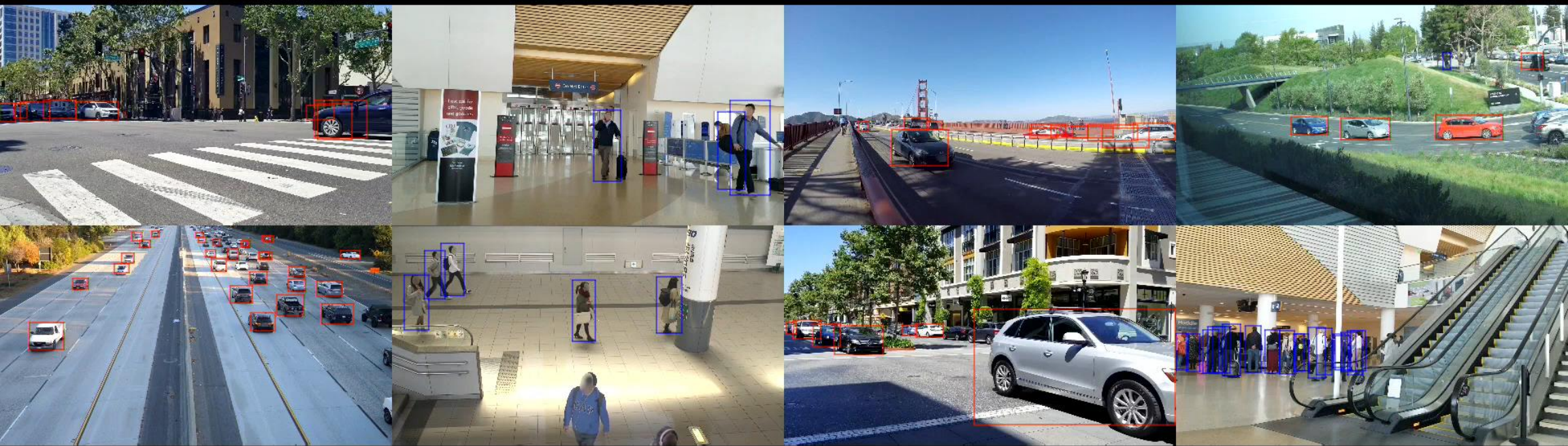
# JETSON NANO RUNS MODERN AI





# JETSON NANO RUNS MODERN AI



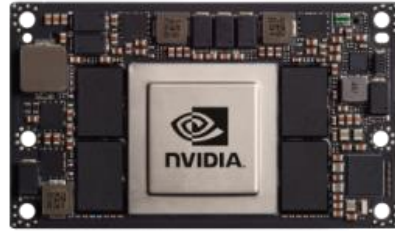


# THE JETSON FAMILY

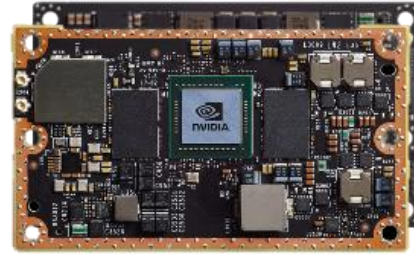
## From AI at the Edge to Autonomous Machines



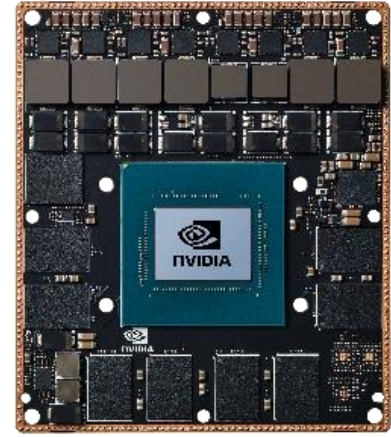
**JETSON NANO**  
5 - 10W  
0.5 TFLOPS (FP16)  
45mm x 70mm  
\$129



**JETSON TX1 → JETSON TX2 4 GB**  
7 - 15W  
1 - 1.3 TFLOPS (FP16)  
50mm x 87mm  
\$299



**JETSON TX2 8GB | Industrial**  
7 - 15W  
1.3 TFLOPS (FP16)  
50mm x 87mm  
\$399 - \$749



**JETSON AGX XAVIER**  
10 - 30W  
10 TFLOPS (FP16) | 32 TOPS (INT8)  
100mm x 87mm  
\$1099

AI at the edge

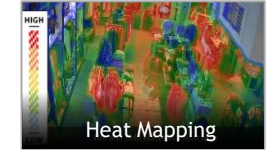
Fully autonomous machines

Multiple devices - Same software

Listed prices are for 1000u+ | Full specs at [developer.nvidia.com/jetson](https://developer.nvidia.com/jetson)

# AI NVR WITH JETSON

## ISV Applications



## METROPOLIS APPLICATION FRAMEWORK



### JETSON NANO

8x 1080p at 30 fps  
41 images/sec (ResNet50)



### JETSON TX2

16x 1080p at 30 fps  
98 images/sec (ResNet50)

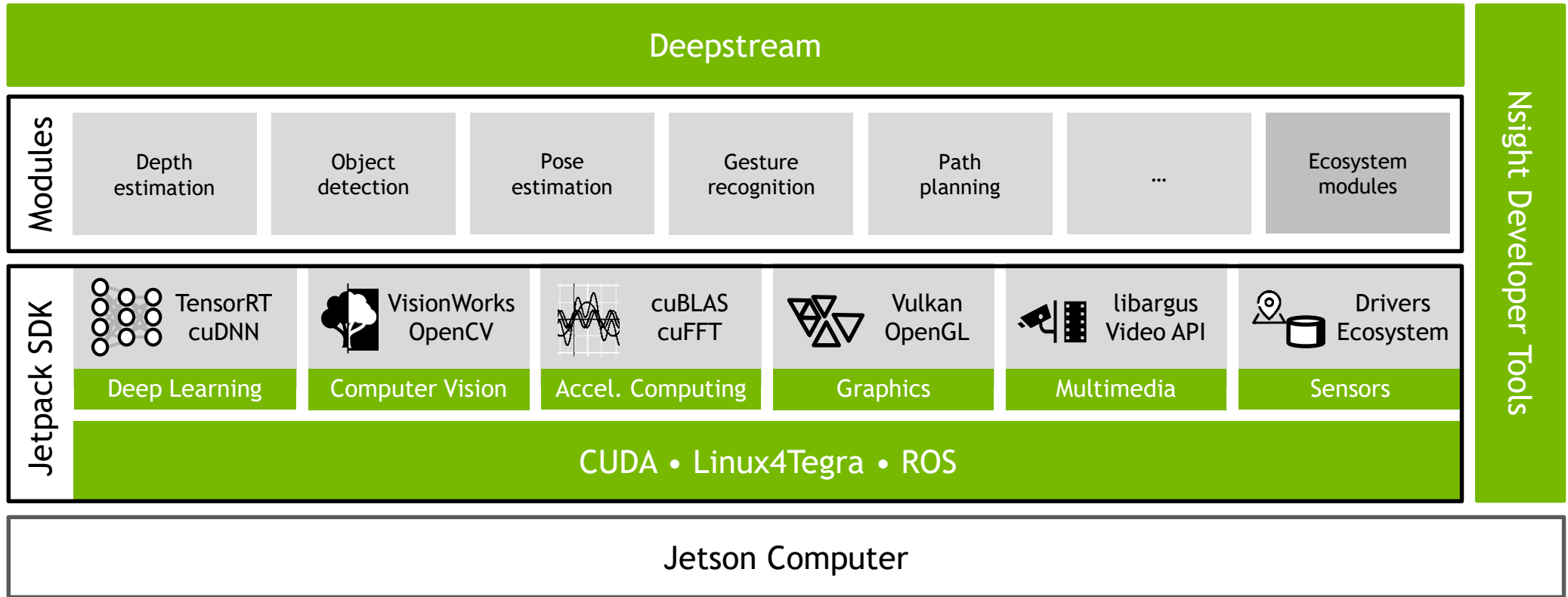


### JETSON AGX XAVIER

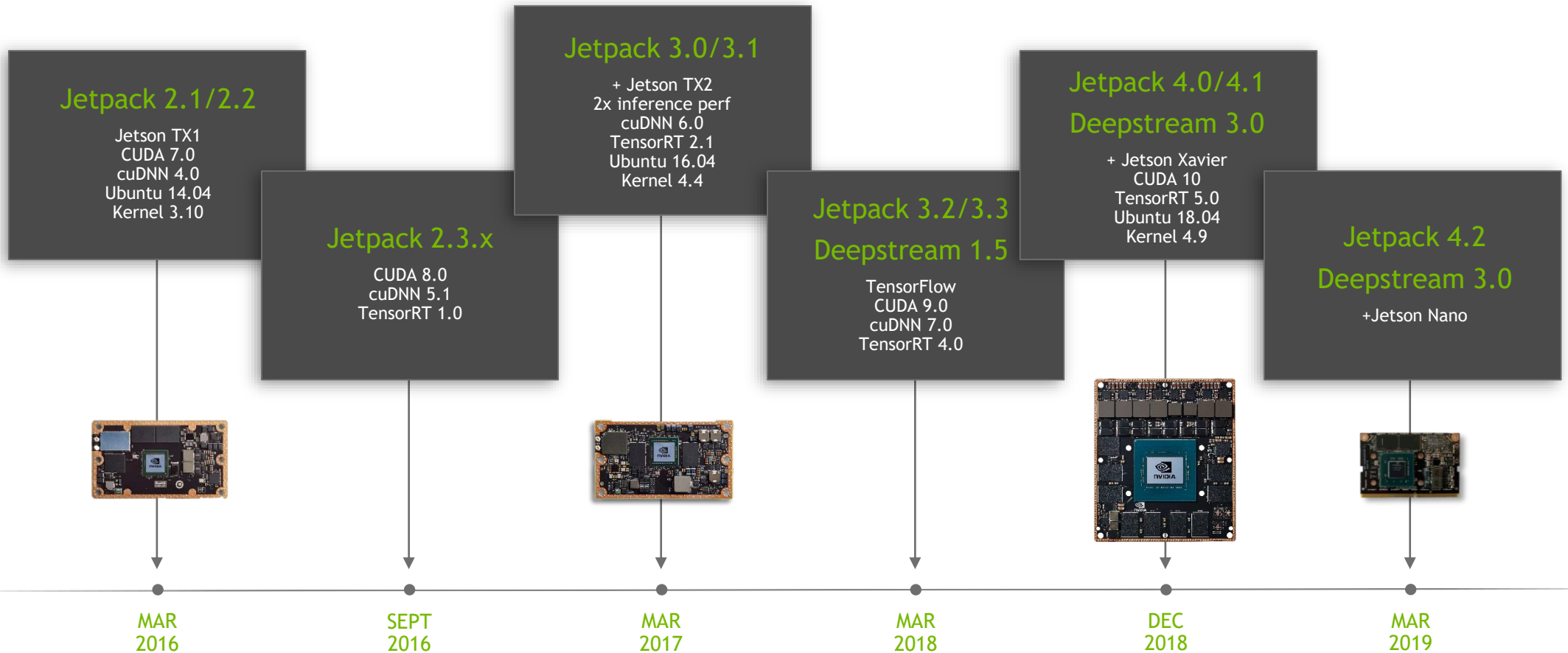
16x 4K / 64x 1080p at 30 fps  
1950 images/sec (ResNet50)



# JETSON SOFTWARE



# CONTINUOUS SOFTWARE INVESTMENT



JETSON NANO		JETSON TX1	JETSON TX2		JETSON AGX XAVIER
GPU	128 Core Maxwell 0.5 TFLOPs (FP16)	256 Core Maxwell 1 TFLOPS (FP16)	256 Core Pascal 1.3 TFLOPS (FP16)		512 Core Volta + NVDLA 10 TFLOPS (FP16) 32 TFLOPS (INT8)
CPU	4 core ARM A57 (1.5 GHz)	4 core ARM A57 (1.5 / 1.7 GHz)	6 core Denver and A57 @ 2GHz (2x) 2MB L2		8 core Carmel ARM CPU @ 2.26GHz (4x) 2MB L2 + 4MB L3
Memory	4 GB 64 bit LPDDR4 25.6 GB/s	4 GB 64 bit LPDDR4 25.6 GB/s	4 GB 128 bit LPDDR4 51 GB/s	8 GB 128 bit LPDDR4 58 GB/s	16GB 256-bit LPDDR4x @ 2133MHz 137 GB/s
Storage	16 GB eMMC	16 GB eMMC	16 GB eMMC	32 GB eMMC	32 GB eMMC
Video Encode	4K @ 30 (H.264/H.265)	4K @ 30 (H.264/H.265)	2x 4K @ 30 (HEVC)		8x 4K @ 60 (HEVC)
Video Decode	4K @ 60 (H.264/H.265)	4K @ 60 (H.264/H.265)	2x 4K @ 30 12 bit support		12x 4K @ 30 12-bit support
Camera	12 (3x4 or 4x2) MIPI CSI-2 DPHY 1.1 lanes (1.5 Gbps)	12 (3x4 or 6x2) MIPI CSI-2 DPHY 1.1 lanes (1.5 Gbps)	12 lanes MIPI CSI-2 D-PHY 1.2 (30 Gbps)		16 lanes MIPI CSI-2   8 lanes SLVS-EC D-PHY (40 Gbps) C-PHY (109 Gbps)
Mechanical	69.6mm x 45mm 260 pin edge connector	87mm x 50mm 400 pin connector	87mm x 50mm 400 pin connector		100mm x 87mm 699 pin connector
Software	Jetpack SDK - Unified software release across all Jetson products				

# JETSON ECOSYSTEM

## DISTRIBUTION



## SOFTWARE

### ISV



### TOOLS/SYSTEMS SW



### CSP-IOT



### SOFTWARE SERVICES



### CAMERA AND SENSORS



## HW AND SENSORS

### HARDWARE AND DESIGN SERVICES





# JETSON NANO DEVELOPER KIT

\$99 AI Computer

128 CUDA Cores | 4 Core CPU

472 GFLOPs

5W | 10W

Available from [nvidia.com](https://nvidia.com) and  
distributors worldwide







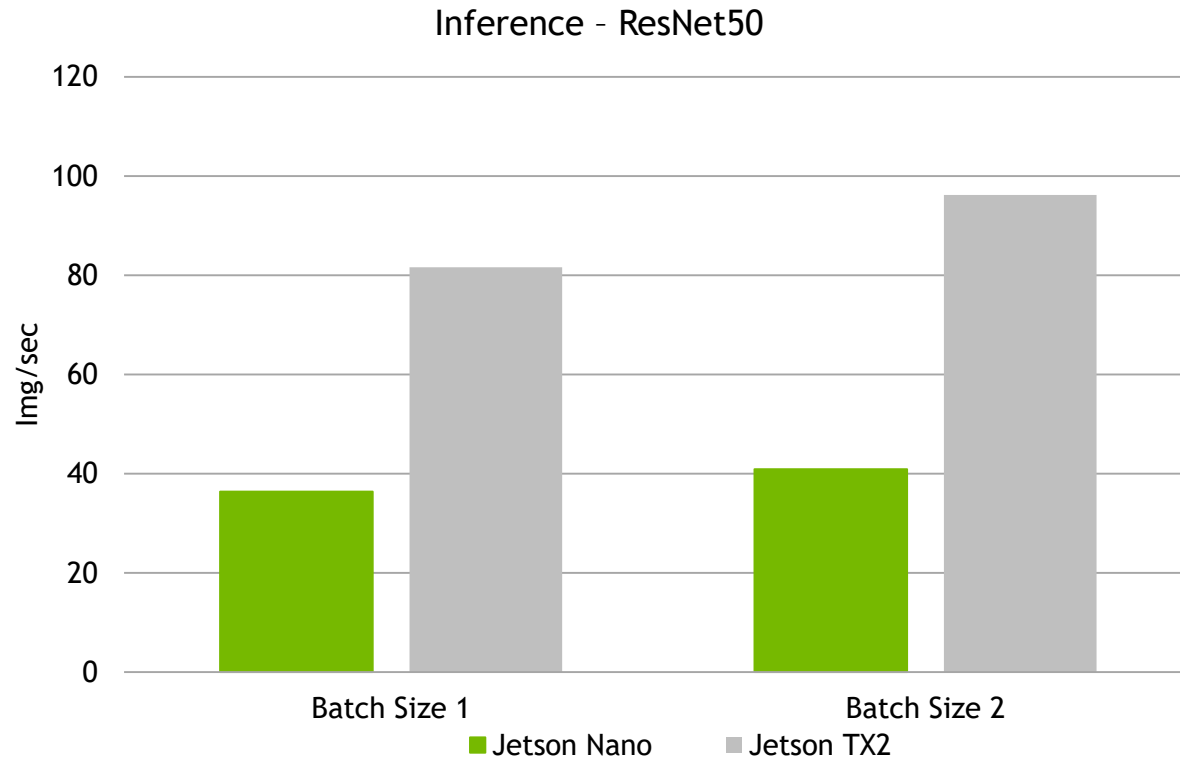
**BACKUP**



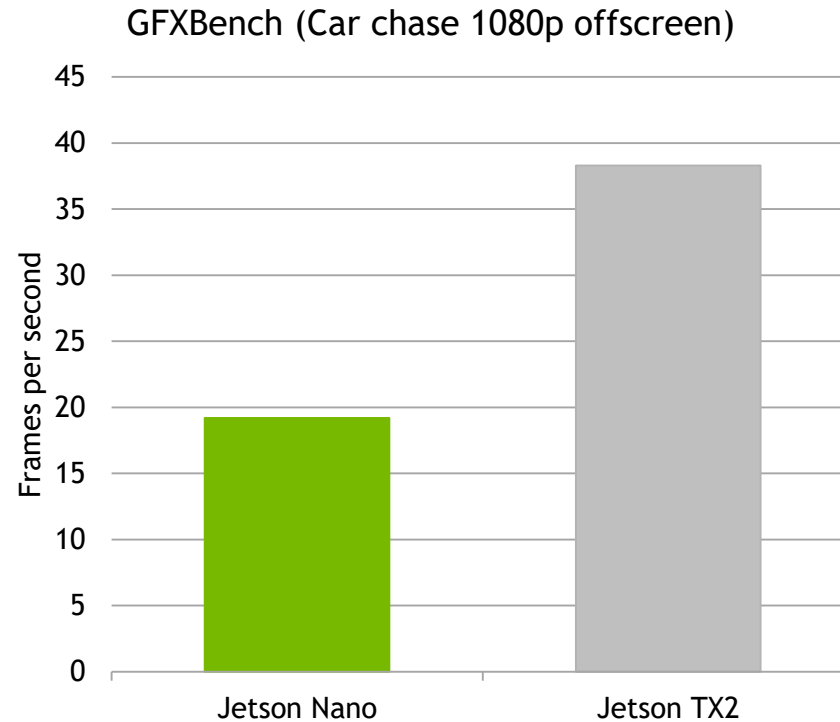
JETSON NANO		JETSON TX2	
GPU	128 Core Maxwell 0.5 TFLOPs (FP16)	256 Core Pascal 1.3 TFLOPS (FP16)	
CPU	4 core ARM A57 @ 1.43 GHz	6 core Denver and A57 @ 2GHz	
Memory	4 GB 64 bit LPDDR4 25.6 GB/s	4 GB 128 bit LPDDR4 51 GB/s	8 GB 128 bit LPDDR4 58 GB/s
Storage	16 GB eMMC	16 GB eMMC	32 GB eMMC
Video Encode	4K @ 30   4x 1080p @ 30   8x 720p @ 30 (H.264/H.265)	2x 4K @ 60   4x 4K @ 30   14x 1080p @ 30 (H.264/H.265)	
Video Decode	4K @ 60   2x 4K @ 30   8x 1080p @ 30   16x 720p @ 30   (H.264/H.265)	2x 4K @ 60   4x 4K @ 30   14x 1080p @ 30 (H.264/H.265)	
Camera	12 (3x4 or 4x2) MIPI CSI-2 DPHY 1.1 lanes (1.5 Gbps)	12 (3x4 or 6x2) MIPI CSI-2 D-PHY 1.2 lanes (30 Gbps)	
WiFi/BT	Requires external chip	Requires external chip	Onboard
Display	HDMI 2.0 or DP1.2   eDP 1.4   DSI (1 x2) 2 simultaneous	HDMI 2.0 or DP 1.2   eDP 1.4   DSI (2 x4) 3 simultaneous	
UPHY	1 x1/2/4 PCIE 1 USB 3.0	1+ 1 x4 or 1+1+1 x1/x2 PCIe or 3xUSB 3.0	
SATA	None	1x	
Other I/Os	1xSDIO / 2xSPI / 3xI2C / UART / I2S / GPIOs	1x SDIO for 8GB 2SDIO for 4GB, 3xSPI, 8xI2C	
USB OTG	Not supported	1x	
Mechanical	69.6mm x 45mm 260 pin edge connector, No TTP	87mm x 50mm 400 pin connector, Integrated TTP	



# JETSON NANO DL PERFORMANCE



# JETSON NANO GRAPHICS PERFORMANCE



# JETSON NANO CPU PERFORMANCE

