

# AAD-ORNXE

Autonomous car controller w/ NVIDIA Jetson Orin NX, 9-36VDC w/ ignition power



## Features:

- Base on NVIDIA Jetson Orin NX 8G/16G DDR SOM module
- Provide M.2 M key 2280 slot with PCIe Gen3 x4 signal
- M12 X-coded Gigabit Ethernet port x 3
- CAN FD interface with isolation feature x 2 (Optional)
- Provide 7-channel Time sync output for external sensor (Optional)
- GMSL2 camera FAKRA Z code interface with frame sync x 4
- HMTD Base-T1 Ethernet port for solid states 3D LiDAR x 4/8, Radar, and camera

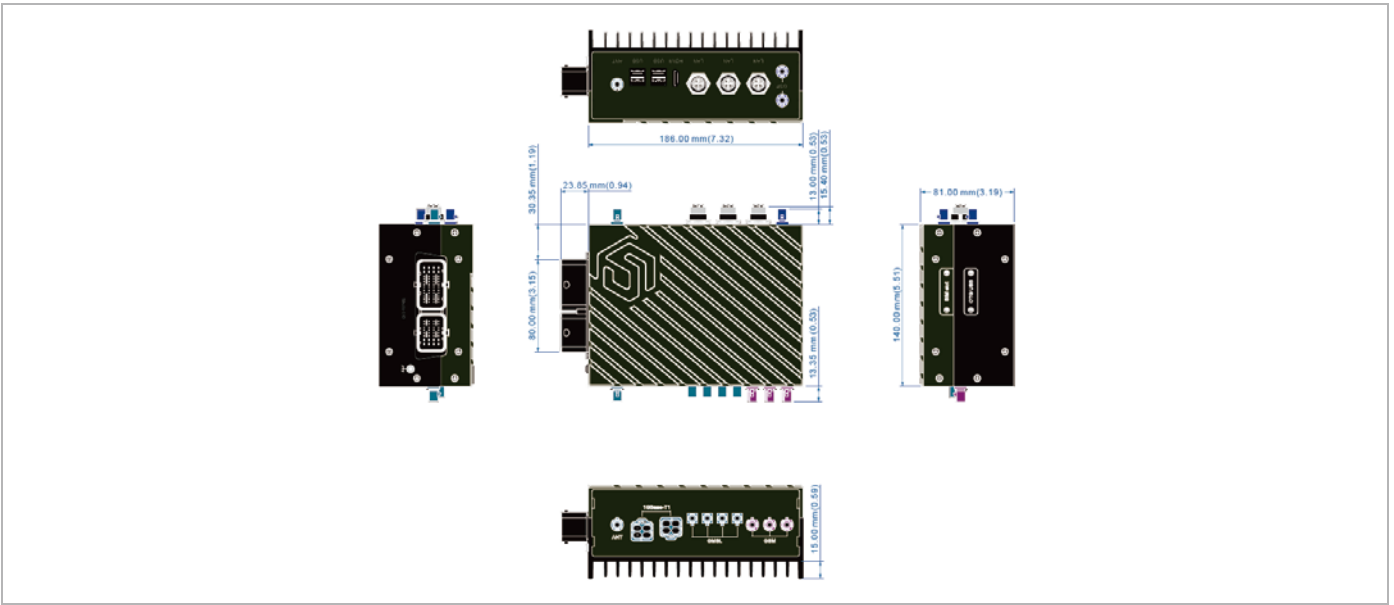
## Specification

System platform	
Processor	NVIDIA Jetson Orin NX 8G/16G DDR SOM module
GPU capacity	ONX16GB: 1024 NVIDIA CUDA cores, 32 Tensor cores, 918MHz ONX 8GB: 1024 NVIDIA CUDA cores, 32 Tensor cores, 765MHz
CPU	ONX 16GB: Eight-core Cortex A78AE ARMv8.2, 64-bit ONX 8GB: Six-core Cortex A78AE ARMv8.2, 64-bit
AI Performance	ONX 16GB: Up to 100(Sparse) INT8 TOPs and 50(Dense) INT8 TOPs ONX 8GB: Up to 70(Sparse) INT8 TOPs and 35(Dense) INT8 TOPs
Deep Learning Acceleration	ONX 16G: 2x NVDLA, maximum frequency up to 614MHz, 20 TOPs (Sparse INT8) ONX 8G: 1x NVDLA, maximum frequency up to 610MHz, 20 TOPs (Sparse INT8)
Internal Memory	NX 16GB: 16GB 128-bit LPDDR5 DRAM, 102GB/s ONX 8GB: 8GB 128-bit LPDDR5 DRAM, 102GB/s
Front Panel Interface	
M12 X-Coded	M12 X-coded GbE Ethernet ports x 3
HDMI interface	HDMI 2.0a/b x 1
USB Port	USB 3.2 Gen1 typA x 4
ANT 1/2	FAKRA C code connector for Wi-Fi x 2
SidePanel Interface	
48pin CMC lockable connector	Multi-channel interface for robotic: 4pin 9-36VDC ignition power input, 1x ACC trigger input for power on Microphone input x1, Speaker output with 10W amplifier x1 PWM GPIO, 2x CAN H/L interface with isolation x3 FAN control output x 1, RS232(TXD/RXD/CTS/RTS) x 1 1x Recovery, 1x Reset, 1x PWR_BTN
32pin CMC lockable connector	PPS + ToD syncout for external sensor x7 12V/3.5A Power output for external sensor x2
Rear Panel Interface	
FAKRA Z code (left side)	GMSL 2 camera FAKRA Z code interface with frame sync x 4
GSM radio 1/2/3	Max. FAKRA D coded connector for 4G/5G x 3
HMTD 1/2	1G Base-T1 Ethernet ports x 8
OTG USB	micro-USB for recovery BSP x 1

Power	
Ignition Feature	Power on delay: 10 sec (default) Power off delay: 3 min (default)
Input power range	9-36Vdc± 5%
Power consumption	100W (full loading) ONX 8G/16G SOM module: default 20W Thermal dissipation: Passive (default), Active (Optional)
Physical Characteristics	
Enclosure	IP40 design, Aluminum
Dimension (mm)	186 x 140 x 86mm (7.32 x 5.51 x 3.385 inch)
Mounting / Installation	Wall mount
Environmental	
Operating Temperature	-20°C to 60°C (-4°F to 140°F)
Operating Humidity	Approx. 95% @40 (non-condensing)
Storage Temperature	-40 to 85°C (-40°F to 185°F)
Vibration	IEC 60068-2-64: 5Grms, 5-500Hz, 3 axes
Shock	Operating: 3G, half sine, 11ms duration
EMI	CE (EN 55032, EN 55035) & FCC class A (ANSI C63.4, 4a)
EMS (TBC)	IEC 61000-4-2 ESD: ± 15kV Air, ± 8kV contact IEC 61000-4-3 RS: 80M~1000MHz, 3V/m(rms), 80% AM (1kHz) IEC 61000-4-4 EFT: Power port ± 1kV, Data port ± 0.5kV IEC 61000-4-5 Surge: Power port L-L ± 1kV, L-G ± 4kV, Data port ± 4kV IEC 61000-4-6 CS: 0.15M~10MHz 3Vrms, 10M~30MHz 3-1Vrms, 30M~80M 1Vrms 80% AM 1kHz IEC 61000-4-8 PFMF: 50/60Hz, 1A/m
Others	
Warranty	2 years

In-Vehicle Computer  
Autonomous Driving Controller  
Network Security Appliance  
Embedded Boards

# Dimension



# Ordering Information

Part Number	Part Number
AAD-ORNXE1 Autonomous car controller w/ NIDIA Jetson Orin NX, 8GB LPDDR5, 9-36VDC w/ ignition power	AAD-ORNXE2 Autonomous car controller w/ NIDIA Jetson Orin NX, 16GB LPDDR5, 9-36VDC w/ ignition power