

# A200 – Parhelion

## Rugged Fan-less NANO™ AI Supercomputer



The A200 Parhelion is the smallest and most powerful Rugged fan-less AI supercomputer based on NVIDIA NANO™, brings AI performance to the edge, available with the powerful NVIDIA Jetson NANO™ System-on-Module.

Its Maxwell GPU with 128 CUDA cores reaches 472 GFLOPs (FP16) at a remarkable level of energy efficiency, providing all the power needed for AI-based local processing right where you need it, next to your sensors.

With its compact SFF size, the A200 Parhelion is the most advanced solution for AI, deep learning, and video and signal processing for the next generation of autonomous vehicles, surveillance and targeting systems, EW systems, drones, wearable and many other applications.

POWERED BY



RuggedAI™ is Aitech

### ■ SWaP-C Rugged AI Supercomputer

### ■ Ultra-Small Form Factor

### ■ NVIDIA® Jetson NANO™ System-on-Module

- ▶ Maxwell™ Architecture GPU w/128 CUDA® Cores
- ▶ 4-Core ARM Cortex-A57 CPU
- ▶ 472 GFLOPs (FP16)
- ▶ H.264/H.265 Hardware Encoder/Decoder
- ▶ Best Available Performance per Watt – 31 GFLOPS/W (FP16)

### ■ NVME SSD

### ■ Removable Micro SD Card

### ■ 4 GB LPDDR4

### ■ Video Capture

- ▶ SDI (SD/HD)
- ▶ Composite (NTSC/PAL)  
8 channels available simultaneously
- ▶ 4 FPD-Link™ III (to MIPI CSI) camera inputs

### ■ I/O

- ▶ Gigabit Ethernet
- ▶ DVI/HDMI Out
- ▶ USB 3.0 & 2.0
- ▶ UART Serial
- ▶ Discretes

### ■ Vulkan, CUDA®, OpenGL, OpenGL ES

### ■ Low Power Consumption

### ■ Environmentally Sealed (IP67)

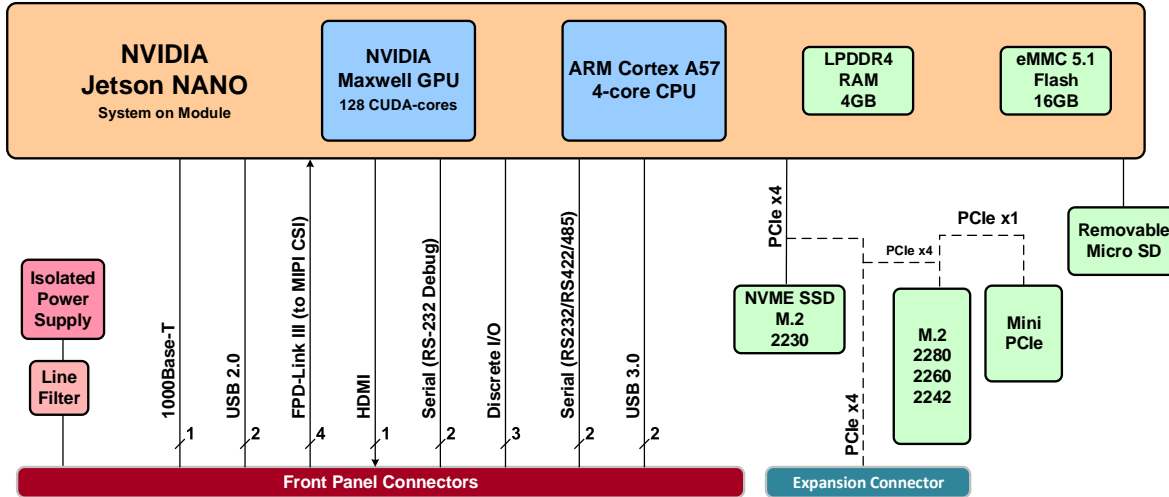
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[www.aitechsystems.com](http://www.aitechsystems.com)

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### System Architecture

<b>System on Module</b>	NVIDIA Jetson NANO™
<b>GPU</b>	<ul style="list-style-type: none"><li>• NVIDIA Maxwell GPU Architecture</li><li>• 128 CUDA cores</li><li>• 472 GFLOPs (FP16)</li><li>• Vulkan</li><li>• OpenGL</li><li>• OpenGL ES</li><li>• CUDA</li></ul>
<b>CPU</b>	Quad-core ARM A57 @ 1.43 GHz
<b>Expansion Options</b>	Main board accommodates up to two optional expansion modules (via factory configuration), such as: <ul style="list-style-type: none"><li>• Optional I/O expansion modules (for example: SDI Frame Grabber – standard I/O expansion module options are determined by system I/O Variant)</li><li>• Optional NVMe SSD</li></ul> Additional I/O expansion module options and NVMe SSD options may be available per customer request, contact an Aitech representative for more info
<b>System Resources</b>	<ul style="list-style-type: none"><li>• Multi-standard Video/JPEG Decoder/Encoder, HW Encoding for H.264/H.265</li><li>• Dynamic voltage and frequency scaling</li><li>• Temperature Sensors</li><li>• Status Indicator LED</li></ul>

### Memory Resources

<b>RAM</b>	4 GB LPDDR4, operates at up to 25.6 GB/s (depends on power mode), 128-bit interface
<b>eMMC</b>	16 GB eMMC 5.1 (boot source)
<b>NVMe SSD</b>	Optional NVMe SSD (standard options are listed in <i>Ordering Information</i> below, additional options may be available per customer request, contact an Aitech representative for more info)
<b>Removable Micro SD Card</b>	Optional removable Micro SD card (standard options are listed in <i>Ordering Information</i> below, additional options may be available per customer request, contact an Aitech representative for more info)

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I/O	I/O Variant			
	00	01	02	03
<b>Composite Input</b> NTSC/PAL, supports simultaneous capture of all channels at full frame rates	–	8	–	–
<b>SDI Input</b> 480/60i, 576/50i, 720/60p, 1080/60i, 1080/30p,	–	–	1	–
<b>USB 3.0</b>		–		2
<b>FPD-Link III (to MIPI CSI) camera inputs</b>		–		4
<b>NVME SSD (1 TB*)</b>	1	–		1
<b>Gigabit Ethernet (10/100/1000Base-T)</b>			1	
<b>DVI (single-link) / HDMI Output</b> Supports resolutions up to 1920x1080 [60p]			1	
<b>USB 2.0</b>			2	
<b>Serial Ports (RS-232 UART Debug)</b>			1	
<b>Serial Ports (RS-232/422/485 UART)</b> Software configurable as RS-232/422/485			2	
<b>Discrete I/O (Single-Ended)</b>			3	

\* - Additional options may be available per customer request, contact an Aitech representative for more info

### Software

- Linux OS pre-installed – L4T (Linux for Tegra), a lightly modified Ubuntu-based distribution
- Video capture drivers and sample applications pre-installed, in variants equipped with optional frame grabber(s)

### Mechanical

<b>Dimensions (L x W x H)</b>	100 mm x 55 mm x 100 mm [3.9" x 2.2" x 3.9"]
<b>Weight</b>	< 650 gr [1.4 lbs.]

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## Rugged Fan-less NANO™ AI Supercomputer

### Power

<b>Input Power</b>	<ul style="list-style-type: none"><li>• Wide input voltage range: 11 – 34 V<sub>DC</sub> steady state operation</li><li>• Input reverse polarity protection</li><li>• EMI/RFI input filter</li><li>• On-board supplies isolated from external supply</li><li>• MIL-STD-704 and MIL-STD-1275 compliant (no hold-up)</li></ul>
<b>Power Consumption</b>	<ul style="list-style-type: none"><li>• Two main different power preset modes for the NVIDIA NANO™:<ul style="list-style-type: none"><li>▪ 5 W</li><li>▪ 10 W (default)</li></ul></li><li>• Users can create custom presets, specifying clocks and online cores</li><li>• Total power consumption depends on system configuration and expansion options</li></ul>

### Environmental

<b>Operating Temp.</b>	<b>Min.</b>	-25 °C
	<b>Max.</b>	+55 °C
<b>Non-Operating Temp.</b>		-40 to +80 °C
<b>Vibration</b>		V2 per VITA 47
<b>Operating Shock</b>		OS2 per VITA 47
<b>Altitude</b>		-1,500 to +60,000 ft. <sup>(1)</sup>
<b>Relative Humidity</b>		0 – 100%
<b>Ingress Protection</b>		IP67 <sup>(2)</sup>
<b>Rain</b>		MIL-STD-810H, Method 506.6, Procedure III
<b>Dust</b>		MIL-STD-810H, Method 510.7, Procedure I & II
<b>Salt Fog</b>		MIL-STD-810H, Method 509.7
<b>Bench Handling</b>		MIL-STD-810H, Method 516.8, Procedure VI
<b>Fungus</b>		MIL-STD-810H, Method 508.8
<b>EMI/RFI</b>		Designed for MIL-STD-461

Notes: (1) Depending on temperature and system power dissipation  
(2) With appropriate connections to system I/O and power connectors

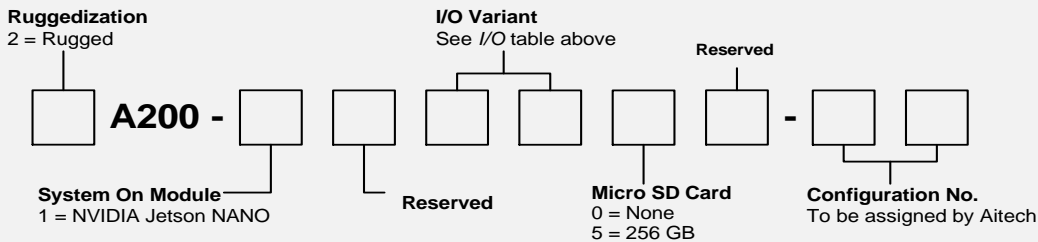
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### Ordering Information



Example: 2A200-100000-00

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### Optional Accessories

<b>TCA200-00-SK</b>	Starter Kit for I/O Variants 00, 01, and 02: External Power Supply, Power Cable, I/O Cables with Standard I/O Connectors
<b>TCA200-00-SK-HS</b>	Starter Kit for I/O Variant 03: External Power Supply, Power Cable, I/O Cables with Standard I/O Connectors
<b>MCS200-1-00</b>	Mating Connectors for I/O Variants 00, 01, and 02: Power and I/O
<b>MCS200-3-00</b>	Mating Connectors for I/O Variant 03: Power and I/O



### Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the A200 and additional software support.

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