

# Intel® 14<sup>th</sup> / 13<sup>th</sup> / 12<sup>th</sup> Generation Embedded & Edge AI Computers

Take Your Automation to the Next Level



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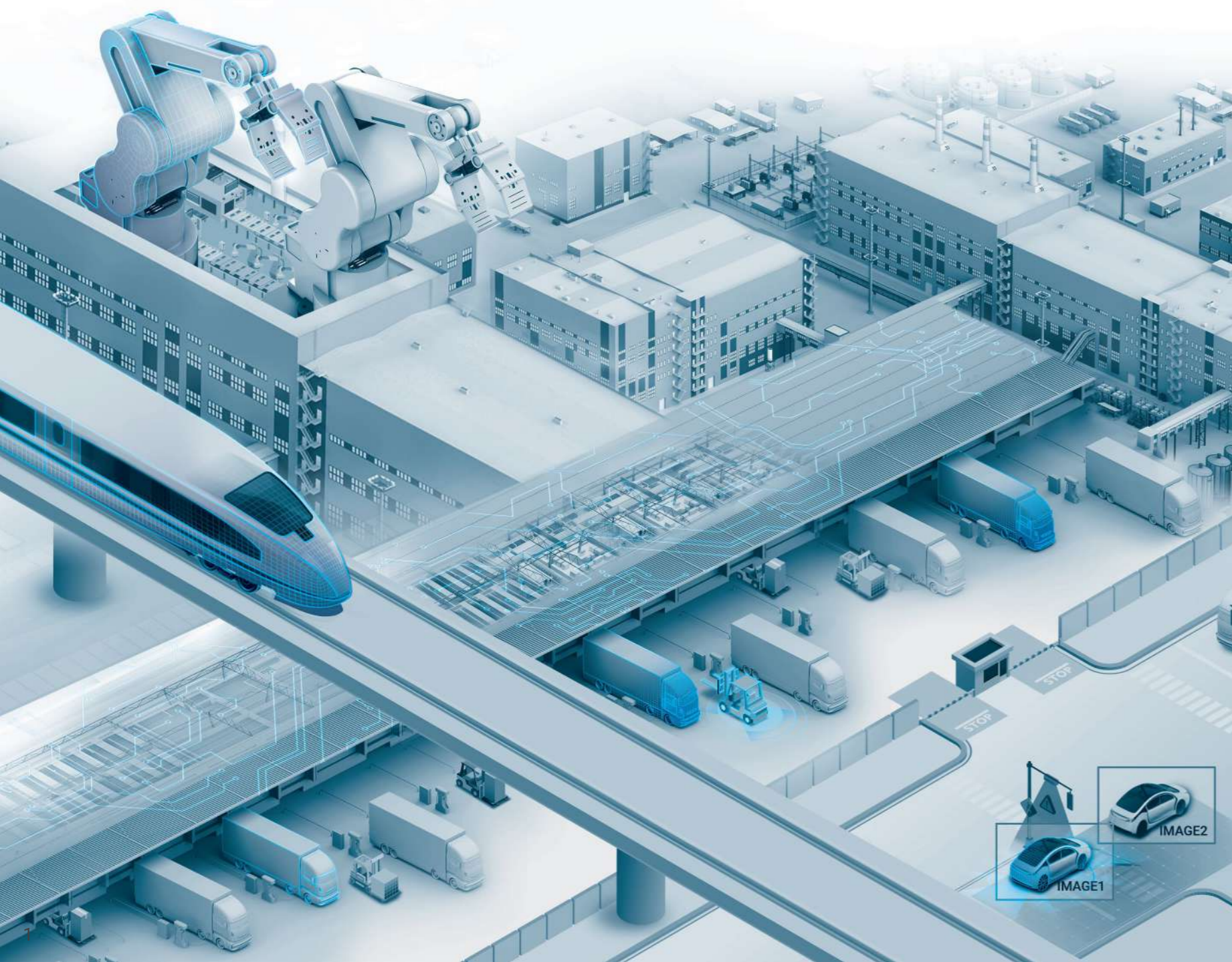
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# Unleashing Hybrid Performance

## Intel 14<sup>th</sup>/ 13<sup>th</sup>/ 12<sup>th</sup> Gen

Change brings advancement, and the ever-changing industrial technology is about to be revolutionized with the release of Neosys Technology's brand new computers featuring Intel® 14<sup>th</sup>/ 13<sup>th</sup>/ 12<sup>th</sup> Gen processors.

Coupled with Neosys Technology's unique thermal and mechanical engineering design, the new embedded computers are geared to optimize the Intel® processor's hybrid architecture while seamlessly incorporate AI-capability into the system. Ranging from compact dimensions to flexible expandability, and from advanced edge AI, in-vehicle to waterproof applications, there are dedicated designs to meet various application needs while offering true wide-temperature operation and non-throttling performance to bring your edge AI solutions to the next level.



### Intel® 14<sup>th</sup>/ 13<sup>th</sup>/ 12<sup>th</sup> Gen

A revolutionary hybrid architecture combining performance and efficient-cores (P-core and E-core) for real-world performance gains, and autonomously scaled to match your application needs.



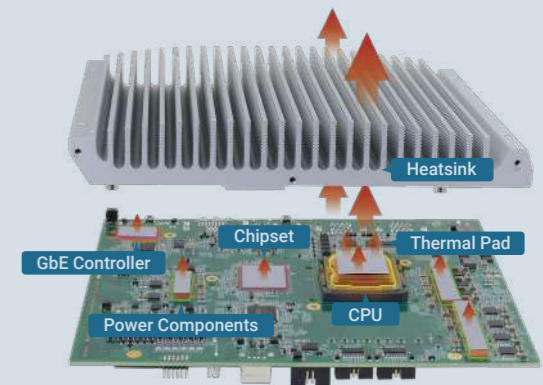
### NVIDIA® Accelerators

NVIDIA® accelerators and Jetson SoM provide a quantum leap in performance with AI-powered capability to offer ultra fast AI data analytic processing.



### Efficient Cooling

Featuring cooling designs from the ground up that include Neosys-designed independent loading mechanism (ILM) offering thorough CPU contact for non-throttling performance. There are also built-in thermal solutions for other performance components such as 5G, DDR5, and M.2 NVMe modules.



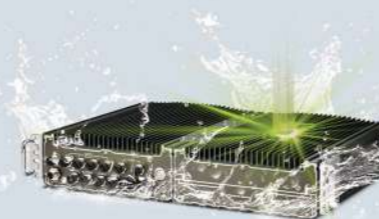
### Ideal Upgrade

Whether upgrading or building a new solution, Neosys embedded systems are virtually impervious to environmental conditions making them the ideal embedded computer.



### Waterproof

Waterproof capability is achieved via specialized molded o-rings and enclosed in stainless steel and aluminum chassis for corrosion resistance.



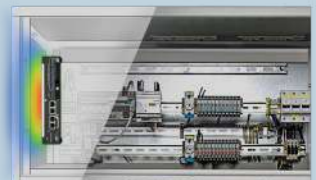
### In-vehicle

Featuring EN 50155, E-Mark certification, multiple I/O ports, shock and vibration resistant for various in-vehicle and mass transportation applications.



### Flattop Heatsink

Utilizing conduction cooling, it is designed to be installed inside a metal cabinet, waterproof box or explosion-proof case, where ventilation is limited.

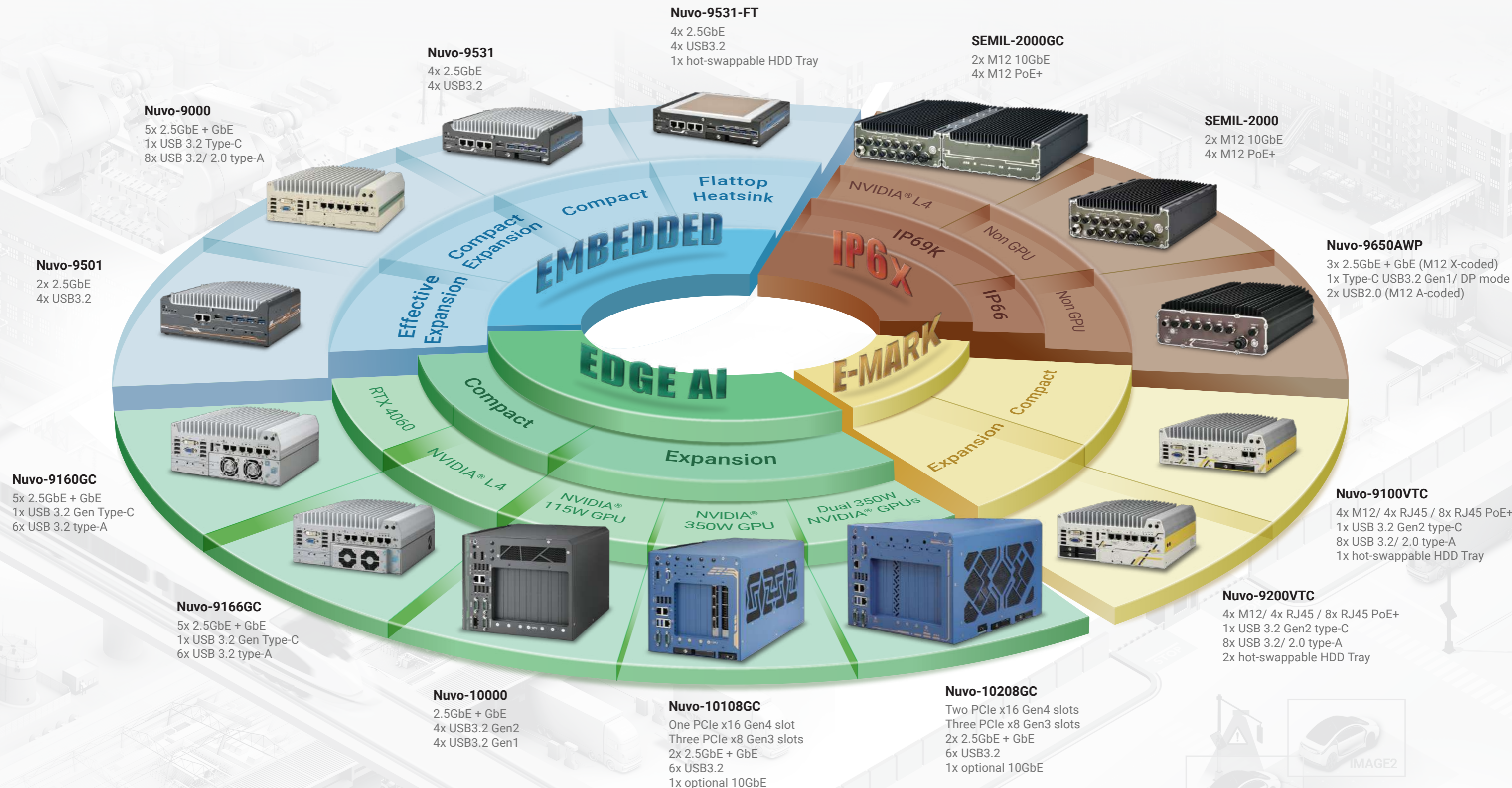


# Excellence Without Compromise

There is an Edge Industrial Computer That's Right for You

The Neosys 14<sup>th</sup>/ 13<sup>th</sup>/ 12<sup>th</sup> Gen. platform features a comprehensive product line with systems ranging from compact dimensions to flexible expandability, and from general embedded to advanced edge AI applications.

Within the optimized platform, there are dedicated designs to meet their specific application needs while offering true wide-temperature operation and non-throttling performance to bring your automated solutions to the next level.



# Specification Table



Model Name	Nuvo-9000E/ P/ DE	Nuvo-9501	Nuvo-9531	Nuvo-9531-FT		
Chassis	Dimensions (W x D x H)	240 x 225 x 90 mm (Nuvo-9000E/ P) 240 x 225 x 110.5 mm (Nuvo-9000DE)	212 x 165 x 80 mm	212x 165 x 63 mm	212x 165 x 45 mm	
	Weight	3.58 kg (Nuvo-9000E/P) 3.89 (Nuvo-9000DE)	2.5 kg	2.5 kg	2.4 kg	
	Chassis Construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	
System	Processor	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™ CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	
	Chipset	Intel® Q670E	Intel® H610E	Intel® H610E	Intel® H610E	
	Graphics	Intel® UHD Graphics 770/ 730	Intel® UHD Graphics 770/ 730	Intel® UHD Graphics 770/ 730	Intel® UHD Graphics 770/ 730	
	Memory	Up to 64 GB DDR5 4800	Up to 32 GB DDR4 3200	Up to 32 GB DDR4 3200	Up to 32 GB DDR4 3200	
	PoE	Optional (Port 3 to 6, IEEE 802.3at, 25.5W)	-	Optional (Port 1 to 4, IEEE 802.3at, 25.5W)	Optional (Port 1 to 4, IEEE 802.3at, 25.5W)	
I/O Interface	Ethernet	1x 2.5GbE (I225) and 1x GbE (I219) (Nuvo-9002E/ P/ DE) 5x 2.5GbE (I225) and 1x GbE (I219) (Nuvo-9006E/ P/ DE)	2x 2.5GbE by Intel® I226-V (Nuvo-9501) 2x 2.5GbE by Intel® I226-IT (Nuvo-9505D)	4x 2.5GbE by Intel® I226-IT	4x 2.5GbE by Intel® I226-IT	
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DisplayPort	1x VGA 1x DisplayPort	1x VGA 1x DisplayPort	
	Serial Port	2x RS-232/422/485 2x RS-232	1x RS-232/422/485 3x 3-wire RS-232 or 1x RS-422/485	1x RS-232/422/485 3x 3-wire RS-232 or 1x RS-422/485	1x RS-232/422/485 3x 3-wire RS-232 or 1x RS-422/485	
	USB 2.0	2	2	2	2	
	USB 3.2/ USB 3.1	7 (incl. 1x 20Gbps type-C)	4	4	4	
	Audio	1x mic-in and speaker-out	1x mic-in and speaker-out	1x mic-in and speaker-out	1x mic-in and speaker-out	
	Digital I/O	Optional via MeziO® module	4DI +4DO (Nuvo-9505D only)	4DI +4DO	4DI +4DO	
	Storage Interface	SATA HDD	2x 2.5" HDD/ SSD	1x 2.5" HDD/ SSD or 1x 3.5" HDD	1x hot-swap tray for 2.5" HDD/ SSD	1x hot-swap tray for 2.5" HDD/ SSD
		mSATA	-	-	-	-
		M.2 (M-key)	1 (Gen4 x4)	1 (Gen4 x4)	1 (Gen4 x4)	1 (Gen4 x4)
Mini PCI-E		1	2	2	2	
Expansion Bus	M.2 (B-key/ E-key)	1x M.2 B-key	1x M.2 E-key	1x M.2 E-key	1x M.2 E-key	
	SIM	2	2	2	2	
	MeziO®	Yes	-	-	-	
	PCI/PCI Express	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette (Nuvo-9000E) 1x PCI slot in Cassette (Nuvo-9000P) 2x PCIe x16 slots @ Gen3, 8-lanes PCIe signals in Cassette (Nuvo-9000DE)	-	-	-	
	DC Input	8 to 48V DC	8 to 35V DC	8 to 48V DC	8 to 48V DC	
Power Supply	Ignition Control	Optional via MeziO® module	-	-	-	
	Operating Temperature	<b>with 35W CPU</b> -25°C ~ 70°C <b>with 65W CPU</b> -25°C ~ 70°C (configured as 35W TDP mode) -25°C ~ 50°C (configured as 65W TDP mode)	<b>with 35W CPU</b> -10°C to 60°C (Nuvo-9501) -25°C to 60°C (Nuvo-9505D) <b>with 65W CPU (optional fan kit)</b> -10°C to 60°C (Nuvo-9501) -25°C to 60°C (Nuvo-9505D)	<b>with 35W CPU</b> -25°C ~ 60°C <b>with 65W CPU (optional fan kit)</b> -25°C ~ 60°C	<b>with 35W CPU</b> -25°C ~ 60°C <b>with 65W CPU</b> -25°C ~ 60°C (configured as 35W TDP)	
EMC	CE/ FCC, UL623868-1	CE/ FCC	CE/ FCC	CE/ FCC		



Model Name	Nuvo-10208GC	Nuvo-10108GC	Nuvo-10000		
Chassis	Dimensions (W x D x H)	268 x 400 x 196 mm	214 x 400 x 196mm	241 x 280 x 188 mm (Nuvo-10034/ Nuvo-10007) 212 x 173 x 76mm (Nuvo-10003)	
	Weight	6.5 kg	6.2 kg	5.2 kg (Nuvo-10034/ Nuvo-10007) 4.2 kg (Nuvo-10003)	
	Chassis Construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	
System	Processor	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	
	Chipset	Intel® R680E	Intel® R680E	Intel® Q670E	
	Graphics	Intel® HD Graphics 770/ 730	Intel® HD Graphics 770/ 730	Intel® HD Graphics 770/ 730	
	Memory	Up to 128 GB DDR5-4800	Up to 128 GB DDR5-4800	Up to 64 GB DDR5 4800	
	PoE	-	-	-	
I/O Interface	Ethernet	2x 2.5GbE by Intel® I226-IT 1x GbE by Intel® I219LM 1x 10GBASE-T port (Optional)	2x 2.5GbE by Intel® I226-IT 1x GbE by Intel® I219LM 1x 10GBASE-T port (Optional)	1x 2.5GbE by Intel® I226-IT 1x GbE Intel® I219-LM	
	Video Port	1x VGA 1x DisplayPort	1x VGA 1x DisplayPort	1x HDMI 1x DisplayPort	
	Serial Port	2x RS-232/422/485	2x RS-232/422/485	2x RS-232/422/485 3x 3-wire RS-232	
	USB 2.0	1 (internal)	1 (internal)	1(internal)	
	USB 3.2/ USB 3.1	6	6	8	
	Audio	1x mic-in and speaker-out	1x mic-in and speaker-out	1x mic-in and speaker-out	
	Digital I/O	-	-	-	
	Storage Interface	SATA HDD	2x hot-swap tray for 2.5" HDD/ SSD	1x hot-swap tray for 2.5" HDD/ SSD	2x 2.5" HDD/ SSD
		mSATA	-	-	-
		M.2 (M-key)	1+1 optional M.2 tray	1x M.2 M key 1x front-accessible M.2 M key tray (Optional)	1
Mini PCI-E		2	2	2	
Expansion Bus	M.2 (B-key/ E-key)	1x M.2 B-key	1x M.2 B-key	-	
	SIM	3	3	2	
	MeziO®	-	-	Yes (Nuvo-10003/ Nuvo-10034)	
	PCI/PCI Express	2x PCIe x16 slot@Gen4, 8-lanes 3x PCIe x8 slot@Gen3, 4-lanes	1x PCIe x16 slot@Gen4, 8-lanes 3x PCIe x8 slot@Gen3, 4-lanes	(Nuvo-10003) One x16 PCIe and two x8 PCIe slots (Nuvo-10034) Two x16 PCIe, two x8 PCIe and three 33MHz/ 32-bit 5V PCI (Nuvo-10007)Two x16 PCIe, three x8 PCIe and two x4 PCIe slots	
	DC Input	8 to 48V DC	8 to 48V DC	12 to 35V DC	
Power Supply	Ignition Control	Built-in	Built-in	-	
	Operating Temperature	<b>With 35W CPU and dual 350W GPU</b> -25°C ~ 60°C <b>With 65W CPU and dual 350W GPU</b> -25°C ~ 60°C (with fan kit) -25°C ~ 50°C (without fan kit)	<b>With 35W CPU and dual 350W GPU</b> -25°C ~ 60°C <b>With 65W CPU and dual 350W GPU</b> -25°C ~ 60°C (with fan kit) -25°C ~ 50°C (without fan kit)	-25°C ~ 60°C	
EMC	CE/ FCC, MIL-STD-810H	CE/ FCC, MIL-STD-810H	CE/ FCC		

# Specification Table



Model Name	Nuvo-9166GC	Nuvo-9160GC	Nuvo-9200VTC	Nuvo-9100VTC	
Chassis	Dimensions (W x D x H)	240 x 225 x 110.5 mm	240 x 225 x 110.5 mm	240 x 225 x 103 mm	
	Weight	4.0 kg	3.58 kg	3.9 kg	
	Chassis Construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal
System	Processor	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	
	Chipset	Intel® Q670E	Intel® Q670E	Intel® Q670E	
	Graphics	Intel® UHD Graphics 770/ 730	Intel® UHD Graphics 770/ 730	Intel® UHD Graphics 770	Intel® UHD Graphics 770
	Memory	Up to 64 GB DDR5 4800	Up to 64 GB DDR5 4800	Up to 64 GB DDR5 4800	Up to 64 GB DDR5 4800
I/O Interface	PoE	Optional (Port 3 to 6, IEEE 802.3at, 25.5W)	Optional (Port 3 to 6, IEEE 802.3at, 25.5W)	IEEE 802.3at (25.5W) for 4x/ 8x GbE ports via M12 X-coded or RJ45	
	Ethernet	5x 2.5GbE by Intel® I225-IT 1x GbE by Intel® I219-LM	5x 2.5GbE by Intel® I225-IT 1x GbE by Intel® I219-LM	1x 2.5GbE by Intel® I225-IT 1x GbE by Intel® I219-LM	
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	
	USB 2.0	2	2	2	
	USB 3.2/ USB 3.1	7 (incl. 1x 20Gbps type-C)	7 (incl. 1x 20Gbps type-C)	7 (incl. 1x 20Gbps type-C)	
	Audio	1x mic-in and speaker-out	1x mic-in and speaker-out	1x mic-in and speaker-out	
	Digital I/O	Optional via MeziO module	Optional via MeziO module	4 DI + 4 DO	
	Storage Interface	SATA HDD	2x 2.5" HDD/ SSD	2x 2.5" HDD/ SSD	2x hot-swap tray for 2.5" HDD/ SSD
		mSATA	-	-	1 (mux. with mini-PCIe)
M.2 (M-key)		1 (Gen4 x4)	1 (Gen4 x4)	1 (Gen4 x4)	
Mini PCI-E		1	1	3	
Expansion Bus	M.2 (B-key/ E-key)	1x M.2 B-key	1x M.2 B-key	2x M.2 B-key	
	SIM	2	2	5	
	MeziO®	Yes	Yes	-	
	PCI/PCI Express	2x PCIe x16 slot@Gen3, 8-lanes PCIe signal in Cassette for installing NVIDIA® L4 GPU and one additional PCIe card	1x PCIe x16 slot, supporting NVIDIA® GPU (130W)	1x PCIe x16 slot@Gen3, 16-lanes PCIe signal in Cassette	
Power Supply	DC Input	8 to 48V DC	8 to 48V DC	8 to 48V DC	
	Ignition Control	Optional via MeziO® module	Optional via MeziO® module	Built-in	
Environmental	Operating Temperature	<b>with 35W CPU and NVIDIA® L4 GPU</b> -25°C ~ 60°C <b>with 65W CPU and NVIDIA® L4 GPU</b> -25°C ~ 60°C (configured as 35W TOP) -25°C ~ 50°C (configured as 65W TOP)	<b>with 35W CPU and 130W GPU</b> -25°C ~ 60°C <b>with 65W CPU and 130W GPU</b> -25°C ~ 60°C (configured as 35W TOP) -25°C ~ 50°C (configured as 65W TOP)	<b>with 35W CPU</b> -40°C ~ 70°C (with 1 memory module installed) -40°C ~ 60°C (with 2 memory modules installed) <b>with 65W CPU</b> -40°C ~ 50°C (configured as 65W TDP with 2-slots memory)	<b>with 35W CPU</b> -40°C ~ 70°C (with 1 memory module installed) -40°C ~ 60°C (with 2 memory modules installed) <b>with 65W CPU</b> -40°C ~ 50°C (configured as 65W TDP with 2-slots memory)
	EMC	CE/ FCC	CE/ FCC	E-Mark, EN 50121, CE/ FCC	

Model Name	SEMIL-2000GC	SEMIL-2000	Nuvo-9650AWP	
Chassis	Dimensions (W x D x H)	440 x 310 x 90.5 mm	220 x 310 x 90.5 mm	225 x 286 x 90 mm
	Weight	12 kg	6 kg	5.25 kg
	Chassis Construction	Aluminum alloy with stainless steel /waterproof	Aluminum alloy with stainless steel /waterproof	Aluminum alloy with heavy duty metal
	IP Rating	IP69K	IP69K	IP66
System	Processor	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU	Intel® 14th-Gen Core™ CPU Intel® 13th-Gen Core™ CPU Intel® 12th-Gen Core™, Pentium®, Celeron® CPU
	Acceleration GPU	NVIDIA® L4	-	-
	Chipset	Intel® Q670E	Intel® Q670E	Intel® H610E
	Graphics	Intel® UHD Graphics 770	Intel® UHD Graphics 770	Intel® UHD Graphics 770/ 730
I/O Interface	Memory	Up to 64 GB DDR5 4800	Up to 64 GB DDR5 4800	Up to 96 GB DDR5 4800
	Ethernet	4x 2.5GbE IEEE 802.3at (25.5W) by Intel® I226-IT (M12 X-coded) 1x GbE by Intel® I219-LM (M12 X-coded)	4x 2.5GbE IEEE 802.3at (25.5W) by Intel® I226-IT (M12 X-coded) 1x GbE by Intel® I219-LM (M12 X-coded)	1x GbE by Intel® I219-LM (M12 X-coded) 3x 2.5GbE by Intel® Intel I226-IT (M12 X-coded)
	10GbE Port	2x 10GbE by X550-AT2 (M12 X-coded)	2x 10GbE by X550-AT2 (M12 X-coded)	-
	Video Port	2x Type-C USB supporting DP	2x Type-C USB supporting DP	1x VGA 1x DisplayPort in Type-C 1x reserved DisplayPort
	Serial Port	2x 3-wire RS-232 ports 1x 3-wire RS-232 ports 1x RS-422/485 port	2x 3-wire RS-232 ports 1x 3-wire RS-232 ports 1x RS-422/485 port	1x isolated RS-232/422/485 1x isolated RS-422/485 via M12 A-coded
	USB 2.0	2x USB 2.0 (M12 A-coded)	2x USB 2.0 (M12 A-coded)	3
	USB 3.2/ USB 3.1	2x Type-C USB 3.2 Gen1	2x Type-C USB 3.2 Gen1	2
	Audio	-	-	-
	Digital I/O	-	-	-
	SATA HDD	2x internal SATA port for 2.5" HDD/ SSD	2x internal SATA port for 2.5" HDD/ SSD	2x internal SATA port for 2.5" HDD/ SSD
Storage Interface	mSATA	2	2	-
	M.2 (M-key)	1	1	1 (Gen4 x4)
	Mini PCI-E	3	3	2
	M.2 (B-key/ E-Key)	1x M.2 B-key 1x M.2 E-key	1x M.2 B-key 1x M.2 E-key	1x M.2 B-key
Expansion Bus	SIM	5	5	2
	MeziO®	-	-	-
	PCI/PCI Express	1x PCIe with NVIDIA® L4, pre-installed	-	-
Power Supply	DC Input	8 to 48V DC (M12 L-coded)	8 to 48V DC (M12 L-coded)	8 to 48V DC (M12 A-code/ M12 L-coded)
	Ignition Control	Built-in	Built-in	Built-in
Environmental	Operating Temperature	<b>with 35W CPU</b> -40°C ~ 70°C <b>with &gt;= 65W CPU</b> -40°C ~ 70°C (configured as 35W TDP mode) -40°C ~ 60°C (configured as 65W TDP mode)	<b>with 35W CPU</b> -40°C ~ 70°C <b>with &gt;= 65W CPU</b> -40°C ~ 70°C (configured as 35W TDP mode) -40°C ~ 60°C (configured as 65W TDP mode)	<b>with 35W CPU</b> -25°C ~ 70°C <b>with &gt;= 65W CPU</b> -25°C ~ 70°C (configured as 35W TDP mode) -25°C ~ 50°C (configured as 65W TDP mode)
	Certification	CE/ FCC, MIL-STD-810H	CE/ FCC, MIL-STD-810H	CE/ FCC, MIL-STD-810H