

IP67 Waterproof Extreme-rugged Embedded Computer and GPU Computer

For Extremely Harsh Environment Applications

Worldwide Office

Neosys Technology Taipei Headquarter

15F., No.868-3, Zhongzheng Rd.,
Zhonghe Dist., New Taipei City, 23586, Taiwan
Tel: +886-2-22236182 Fax: +886-2-22236183
E-mail: sales@neosys-tech.com

Neosys Technology America, Inc.

3384 Commercial Avenue,
Northbrook, IL 60062, USA
Tel: +1-847-656-3298
E-mail: sales@neosys-tech.com

Neosys Technology China Co., Ltd.

Room 431, Building 33, Guiping Road 680,
Shanghai, 200233, China
Tel: +86-2161155366
E-mail: sales.cn@neosys-tech.com

www.neosys-tech.com



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When A Traditional IPC Reaches Its Limits?

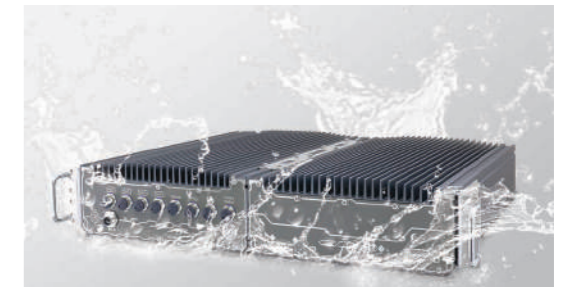
With edge AI deployment becoming more popular in recent years, embedded systems deployed at the edge are usually positioned in hazardous environments that we once avoid putting laborers in. They can be hazardous environments such as high chemical content, chemical by-product concentration or atmospheric conditions (corrosion, humidity, salinity, dust, etc.) that may cause significant harm immediately or in the near future.

Recognizing the niche market, specifically the structural integrity of current embedded systems that limit their deployments into extreme-harsh conditions, Neosys created the extreme-rugged series, the SEMIL.

Aiming to resolve the environmental or climatic factors, Neosys Technology SEMIL computers are a class above traditional rugged-embedded computers. They seek to address some basic but overlooked and yet hard to achieve designs that are ideal for applications such as:

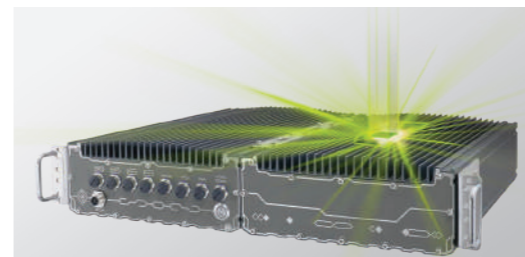
- Factory Automation (food & beverage, chemical, recycling, etc)
- Military
- Maritime
- Environmental Monitoring
- Medical
- Industrial Vehicle
- Transportation
- Railway

Evolution Through Innovation



IP67 Rating

IP67 waterproof capability is achieved via specialized molded o-rings and enclosed in stainless steel and aluminum chassis for corrosion resistance



Patent No. I697759

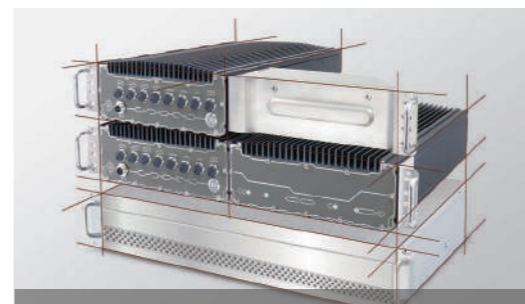
True Wide-temp Fanless with GPU

NVIDIA RTX A2000/ Tesla T4/ Quadro P2200 can operate up to 62°C ambient without GPU throttling



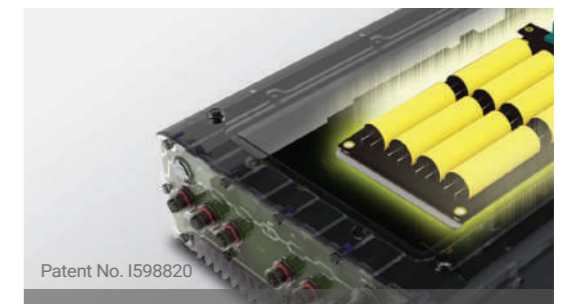
M12 Connectivity

The M12 connectivity features COTS availability and is a cost-effective solution while maintaining robustness



2U Half-rack/ 19" Rackmount

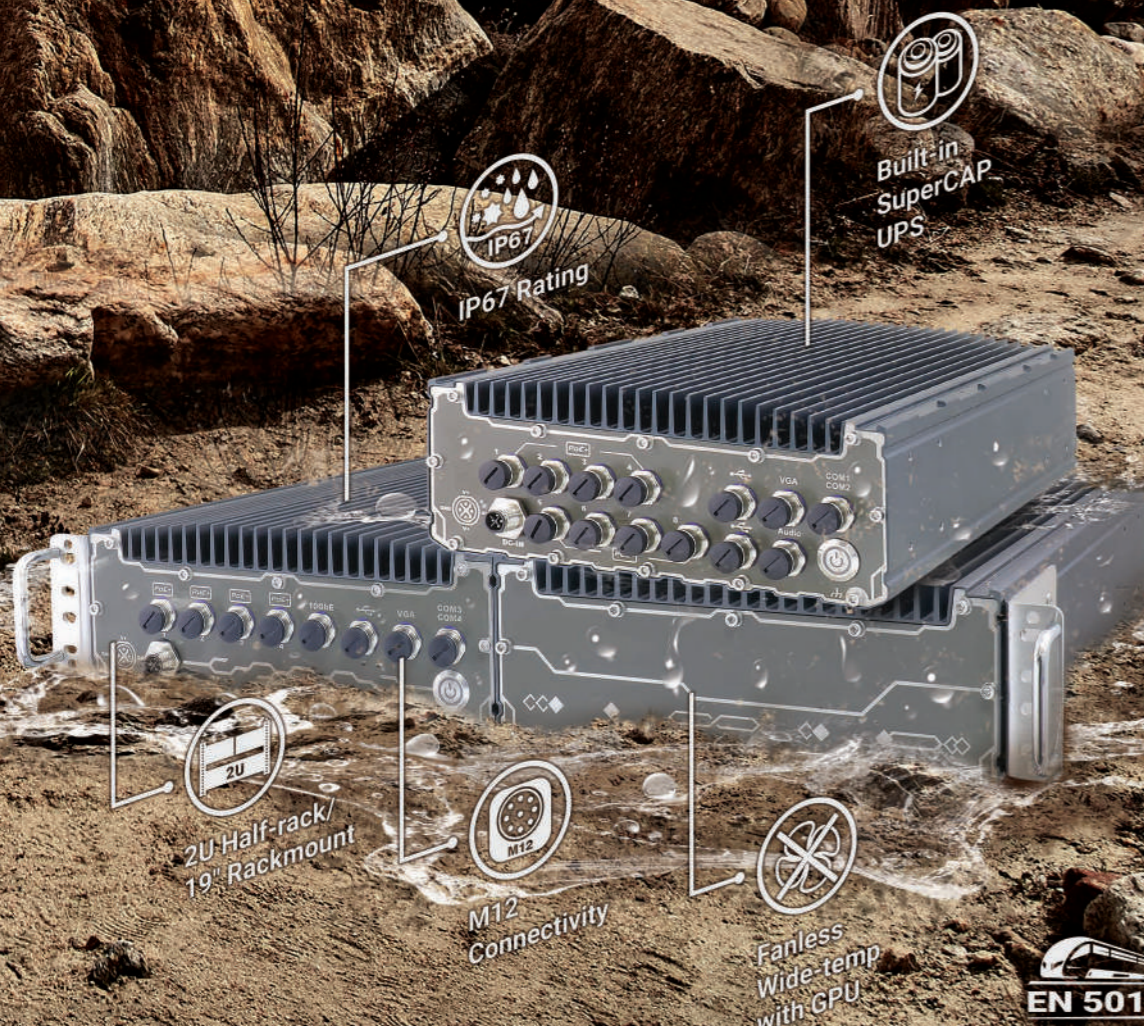
Available in standard form factors with unique brackets for flexible rack or wall-mount deployment



Patent No. I598820

Built-in SuperCAP UPS

Patented SuperCAP UPS effectively prevents data loss while featuring greater reliability and longevity over traditional battery UPS



SEMIL-1700GC Series

IP67 Waterproof GPU Computer Supporting
NVIDIA® RTX A2000/ Tesla T4/ Quadro P2200



- IP67 waterproof with NVIDIA® RTX A2000/ Tesla T4/ Quadro P2200
- Intel® Xeon® E or 9th/ 8th-Gen Core™ CPU
- Patented waterproof 2U 19" chassis for rack or wall-mount*
- Non-throttling GPU performance up to 62°C ambient
- M12 connector (X-coded PoE+, A-coded VGA/ USB/ COM)
- 8 to 48V DC input with built-in ignition power control

*Patent No. I697759



SEMIL-1300GC Series

Wide-temp Fanless GPU Computer Supporting
NVIDIA® RTX A2000/ Tesla T4/ Quadro P2200



- NVIDIA® RTX A2000/ Tesla T4/ Quadro P2200 fanless operation
- Intel® Xeon® E or 9th/ 8th-Gen Core™ CPU
- Patented waterproof 2U 19" chassis for rack or wall-mount*
- Non-throttling GPU performance up to 62°C ambient
- M12 connector (X-coded PoE+, A-coded VGA/ USB/ COM)
- 1x DisplayPort and 3x USB 3.1 Gen1
- 8 to 48V wide-range DC input with built-in ignition power control

*Patent No. I697759



SEMIL-1700 Series

Half-rack IP67 Waterproof Computer



- IP67 waterproof with SuperCAP UPS
- Intel® Xeon® E or 9th/ 8th-Gen Core™ CPU
- -40°C to 70°C fanless operation
- 2U 19" half-rack chassis for rack or wall-mount
- M12 connector (X-coded PoE+, A-coded VGA/ USB/ COM)
- 8 to 48V DC input with built-in ignition power control

*Patent No. I598820



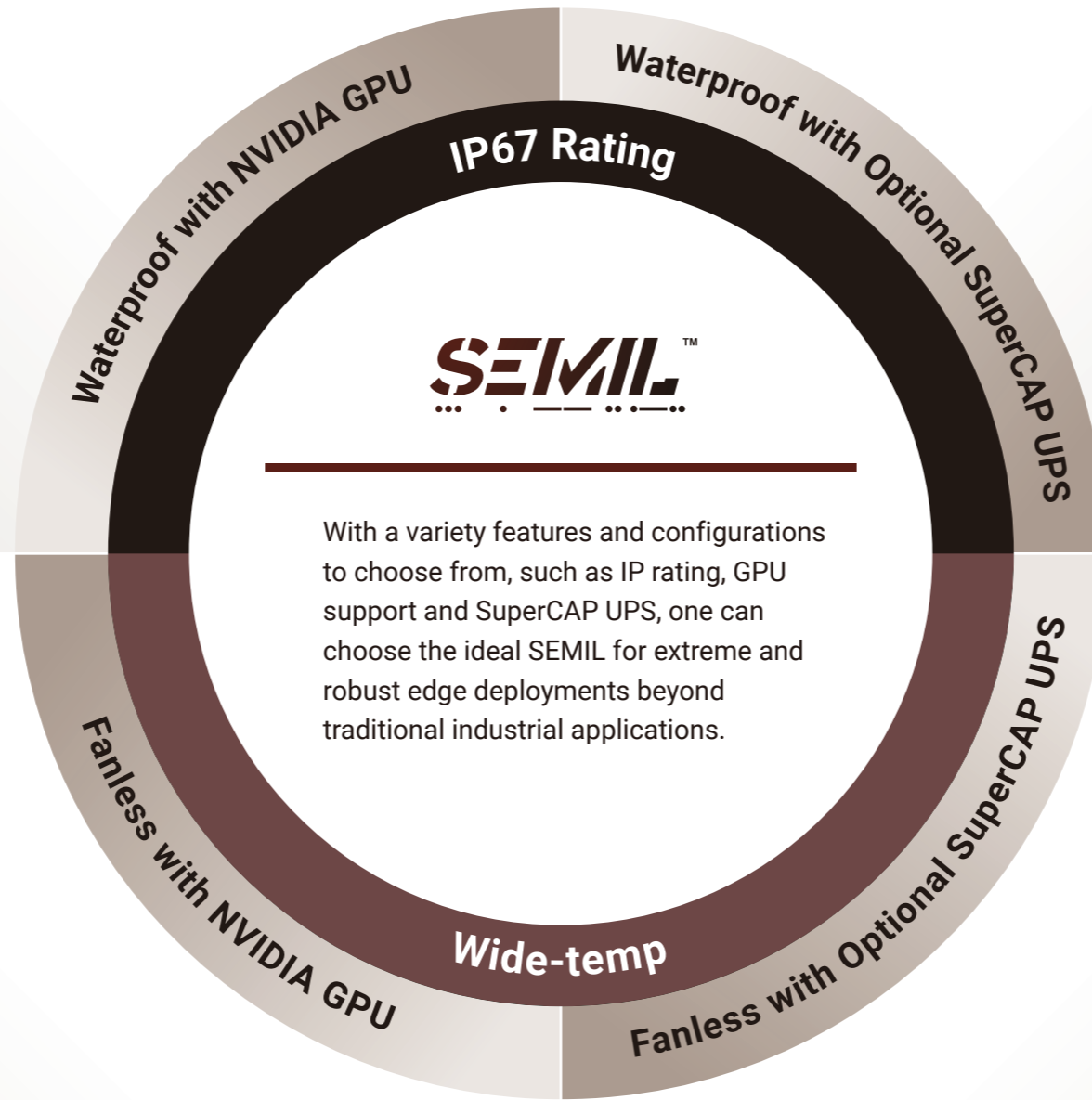
SEMIL-1300 Series

Half-rack Rugged Fanless Computer

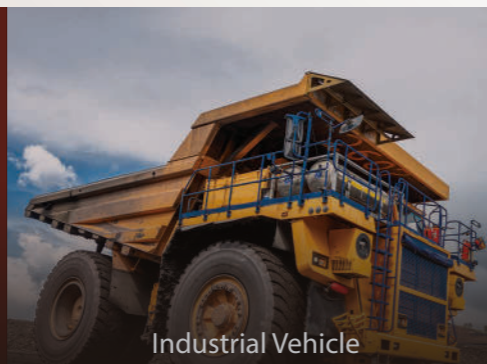


- -40°C to 70°C fanless operation with SuperCAP UPS
- Intel® Xeon® E or 9th/ 8th-Gen Core™ CPU
- 2U 19" half-rack chassis for rack or wall-mount
- M12 connector (X-coded PoE+, A-coded VGA/ USB/ COM)
- 1x DisplayPort and 3x USB 3.1 Gen1
- 8 to 48V DC input with built-in ignition power control

*Patent No. I598820



IP67 & Extreme-rugged
for
Various Deployments



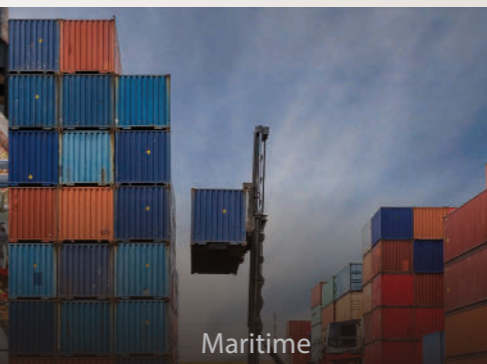
Industrial Vehicle



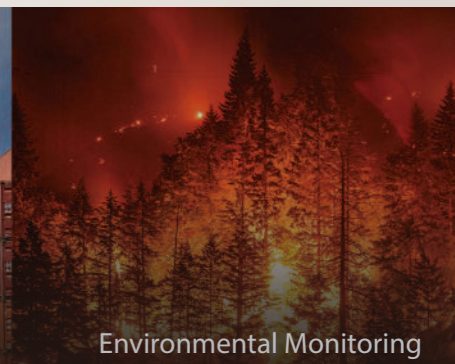
Military Defense



Factory Automation



Maritime



Environmental Monitoring

SEMIL Extreme-rugged Platforms



IP67 Rating				
Model Name	SEMIL-1744GC/ SEMIL-1724GC	SEMIL-1748GC/ SEMIL-1728GC	SEMIL-1704/ SEMIL-1714J	SEMIL-1708/ SEMIL-1718J
Dimensions (W x D x H)	440 x 310 x 86.5 mm	440 x 310 x 86.5 mm	220 x 310 x 86.5 mm	220 x 310 x 86.5 mm
Weight	12 kg	12.2 kg	5.8 kg (SEMIL-1704) 6 kg (SEMIL-1714J)	5.8 kg (SEMIL-1708) 6 kg (SEMIL-1718J)
Chassis Construction	Aluminum alloy with stainless steel /waterproof	Aluminum alloy with stainless steel /waterproof	Aluminum alloy with stainless steel	Aluminum alloy with stainless steel
IP Rating	IP67	IP67	IP67	IP67
Processor	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
Acceleration GPU	NVIDIA® RTX A2000 (SEMIL-1724GC-A2K) NVIDIA® Tesla T4 (SEMIL-1744GC) NVIDIA® Quadro P2200 (SEMIL-1724GC)	NVIDIA® RTX A2000 (SEMIL-1728GC-A2K) NVIDIA® Tesla T4 (SEMIL-1748GC) NVIDIA® Quadro P2200 (SEMIL-1728GC)	-	-
Chipset	Intel® C246	Intel® C246	Intel® C246	Intel® C246
Graphics	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630
Memory	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400
PoE	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 3x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 7x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 3x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 7x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)
10GbE Port	Optional 1x 10G port (M12 X-coded)	Optional 1x 10G port (M12 X-coded)	Optional 1x 10G port (M12 X-coded)	Optional 1x 10G port (M12 X-coded)
Video Port	1x VGA (M12 A-coded)	1x VGA (M12 A-coded)	1x VGA (M12 A-coded)	1x VGA (M12 A-coded)
Serial Port	2x RS-232 ports (M12 A-coded)	2x RS-232 ports (M12 A-coded)	2x RS-232 ports (M12 A-coded)	2x RS-232 ports (M12 A-coded)
USB 2.0	2x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)	4x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)	2x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)	4x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)
USB 3.1	-	-	-	-
Audio	-	1x Mic-in and speaker-out (M12 A-coded)	-	1x Mic-in and speaker-out (M12 A-coded)
Digital I/O	-	-	-	-
SATA HDD	2	2	2	2
mSATA	2	2	2	2
M.2 (M-key)	1	1	1	1
Mini PCI-E	2 (mux with mSATA)	4 (2x mux with mSATA)	2 (mux with mSATA)	4 (2x mux with mSATA)
M.2 (B-key/ E-Key)	-	-	-	-
SIM	2	2	2	2
PCI/PCI Express	1x PCIe with NVIDIA® Tesla T4 pre-installed (SEMIL-1744GC) 1x PCIe with NVIDIA® RTX A2000/ Quadro P2200 pre-installed (SEMIL-1724GC-A2K/ SEMIL-1724GC)	1x PCIe with NVIDIA® Tesla T4 pre-installed (SEMIL-1748GC) 1x PCIe with NVIDIA® RTX A2000/ Quadro P2200 pre-installed (SEMIL-1728GC-A2K/ SEMIL-1728GC)	PB-2500 pre-installed (SEMIL-1714J)	PB-2500 pre-installed (SEMIL-1718J)
DC Input	8 to 48V DC (M12 S-coded)	8 to 48V DC (M12 S-coded)	8 to 48V DC (M12 S-coded)	8 to 48V DC (M12 S-coded)
Ignition Control	Built-in	Built-in	Built-in	Built-in
Operating Temperature	with 35W CPU -25°C ~ 70°C with >= 65W CPU -25°C ~ 70°C (configured as 35W TDP mode) -25°C ~ 50°C (configured as 65W TDP mode)	with 35W CPU -25°C ~ 70°C with >= 65W CPU -25°C ~ 70°C (configured as 35W TDP mode) -25°C ~ 50°C (configured as 65W TDP mode)	with 35W CPU -40°C ~ 70°C with >= 65W CPU -40°C ~ 70°C (configured as 35W TDP mode) -40°C ~ 50°C (configured as 65W TDP mode)	with 35W CPU -40°C ~ 70°C with >= 65W CPU -40°C ~ 70°C (configured as 35W TDP mode) -40°C ~ 50°C (configured as 65W TDP mode)
Certification	EN 50155, CE/ FCC, MIL-STD-810G	EN 50155, CE/ FCC, MIL-STD-810G	EN 50155, CE/ FCC, MIL-STD-810G	EN 50155, CE/ FCC, MIL-STD-810G

Wide-temperature				
Model Name	SEMIL-1341GC/ SEMIL-1321GC	SEMIL-1301	SEMIL-1311J	
Dimensions (W x D x H)	440 x 310 x 86.5 mm	220 x 310 x 86.5 mm	220 x 310 x 86.5 mm	
Weight	12 kg	5.8 kg	6 kg	
Chassis Construction	Aluminum alloy with stainless steel	Aluminum alloy with stainless steel	Aluminum alloy with stainless steel	
IP Rating	IP4X	IP4X	IP4X	
Processor	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
Acceleration GPU	NVIDIA® RTX A2000 (SEMIL-1321GC-A2K) NVIDIA® Tesla T4 (SEMIL-1341GC) NVIDIA® Quadro P2200 (SEMIL-1321GC)	-	-	
Chipset	Intel® C246	Intel® C246	Intel® C246	
Graphics	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	
Memory	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	
PoE	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 3x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 3x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)	1x IEEE 802.3at (25.5W) by Intel I219 (M12 X-coded) 3x IEEE 802.3at (25.5W) by Intel I210 (M12 X-coded)	
10GbE Port	Optional 1x 10G port (M12 X-coded)	Optional 1x 10G port (M12 X-coded)	Optional 1x 10G port (M12 X-coded)	
Video Port	1x VGA (M12 A-coded) 1x DisplayPort	1x VGA (M12 A-coded) 1x DisplayPort	1x VGA (M12 A-coded) 1x DisplayPort	
Serial Port	2x RS-232 ports (M12 A-coded) 1x RS-232/422/485 1x RS-232	2x RS-232 ports (M12 A-coded) 1x RS-232/422/485 1x RS-232	2x RS-232 ports (M12 A-coded) 1x RS-232/422/485 1x RS-232	
USB 2.0	2x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)	2x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)	2x USB 2.0 (M12 A-coded) 1x USB 2.0 (internal)	
USB 3.1	3	3	3	
Audio	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out	
Digital I/O	-	-	-	
SATA HDD	2	2	2	
mSATA	2	2	2	
M.2 (M-key)	1	1	1	
Mini PCI-E	2 (mux with mSATA)	2 (mux with mSATA)	2 (mux with mSATA)	
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 1x M.2 E-key	
SIM	4	4	4	
PCI/PCI Express	1x PCIe with NVIDIA® Tesla T4 pre-installed (SEMIL-1341GC) 1x PCIe with NVIDIA® RTX A2000/ Quadro P2200 pre-installed (SEMIL-1321GC-A2K/ SEMIL-1321GC)	-	PB-2500 pre-installed	
DC Input	8 to 48V DC	8 to 48V DC	8 to 48V DC	
Ignition Control	Built-in	Built-in	Built-in	
Operating Temperature	with 35W CPU -40°C ~ 70°C with >= 65W CPU -25°C ~ 70°C (configured as 35W TDP mode) -25°C ~ 50°C (configured as 65W TDP mode)	with 35W CPU -40°C ~ 70°C with >= 65W CPU -40°C ~ 70°C (configured as 35W TDP mode) -40°C ~ 50°C (configured as 65W TDP mode)	with 35W CPU -40°C ~ 70°C with >= 65W CPU -40°C ~ 70°C (configured as 35W TDP mode) -40°C ~ 50°C (configured as 65W TDP mode)	
Certification	EN 50155, CE/ FCC, MIL-STD-810G	EN 50155, CE/ FCC, MIL-STD-810G	EN 50155, CE/ FCC, MIL-STD-810G	