SEMIL-2000 Series

2U 19"/2 rack mount IP69K waterproof computer supporting Intel® 14th / 13th/ 12th-Gen Core™ processor with M12 10GbE and M12 PoE+ ports

Key Features

SEMIL-2008

SEMIL-2007

- IP69K waterproof computer
- -40°C to 70°C wide-temperature fanless operation
- 2x 10GbE, 1x GbE, and 4x 2.5GbE PoE+ via M12 X-coded connectors(SEMIL-2007)
  Up to 8x Ethernet ports and 4x PoE+ via M12 X-coded connectors (SEMIL-2008)
- 2x SocketCAN and 2x USB3.2 Gen1 Type-C w/ DP alternative mode
- 8V to 48V wide-range DC input with reverse polarity protection and built-in ignition power control
- MIL-STD-810H compliant

*R.O.C Patent No. I697759
*CN Patent Pending

Introduction

SEMIL-2000 is an extreme-rugged embedded platform with an IP69K-rated dustproof and waterproof design in a 2U 19" rack-mount form factor. Featuring Neousys' advanced thermal design, it ensures fanless operation across -40°C to 70°C wide-temperature ranges and offers dual 5Gbps Type-C ports with DisplayPort signal output.
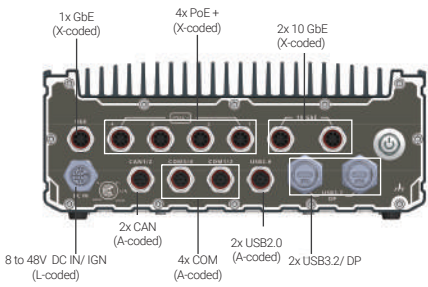
SEMIL-2000 is powered by Intel's 14th/ 13th/ 12th-Gen platform. The platform benefits from Intel® 7 photolithography, the latest Core™ desktop processors come with a hybrid configuration consisting of performance and efficient cores, and it can support up to 128GB DDR5 memory.

The system adopts a corrosion-proof stainless steel and aluminum chassis to counteract moisture and salinity. Utilizing all M12 connectors to guarantee extreme-rugged connection in shock and vibration environments, it offers a variety of I/O connectivity, two CAN bus 2.0 with SocketCAN driver, two USB 3.2, seven Ethernet (including two 10GbE), and four 802.3at PoE+ ports to supply 25.5W of power per port to connected compatible devices. Internal expansion-wise, it has an M.2 M-key socket to support NVMe SSD and mini-PCIe sockets for extending feature sets. Additionally, SEMIL-2000 features two 2.5" SATA SDD/ HDD accommodation, 8-48V wide-range DC input with ignition power control, and it is in compliance with MIL-STD-810H standards.
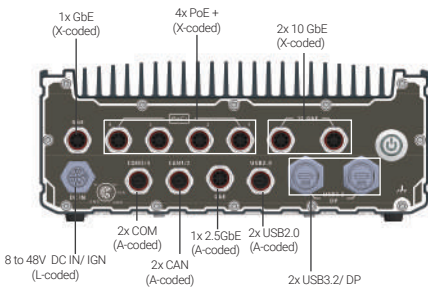
Specifications

	SEMIL-2007	SEMIL-2008
System Core		
Processor	Supporting Intel® 14th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-14900/ i9-14900T - Intel® Core™ i7-14700/ i7-14700T - Intel® Core™ i5-14500/ i5-14400/ i5-14500T - Intel® Core™ i3-14100/ i3-14100T Supporting Intel® 13th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-13900E/ i9-13900TE - Intel® Core™ i7-13700E/ i7-13700TE - Intel® Core™ i5-13500E/ i5-13400E/ i5-13500TE - Intel® Core™ i3-13100E/ i3-13100TE Supporting Intel® 12th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-12900E/ i9-12900TE - Intel® Core™ i7-12700E/ i7-12700TE - Intel® Core™ i5-12500E/ i5-12500TE - Intel® Core™ i3-12100E/ i3-12100TE - Intel® Pentium® G7400E/ G7400TE - Intel® Celeron® G6900E/ G6900TE	
Chipset	Intel® Q670E platform controller hub	Intel® R680E platform controller hub
Graphics	Integrated Intel® UHD Graphics 770 (32EU)	
Memory	Up to 128 GB DDR5 4800 SDRAM (two SODIMM slots)	Up to 128 GB ECC/ non-ECC DDR5 4800 SDRAM (two SODIMM slots)
AMT	Supports Intel vPro/ AMT 16.0	
TPM	Supports dTPM 2.0	
I/O Interface		
Ethernet Port	2x 10GbE Ethernet by X550-AT2 (with WoL) (M12 X-coded) 4x 2.5GbE Ethernet by Intel I226-IT (PoE+) (M12 X-coded) 1x GbE Ethernet by Intel I219-LM (with WoL) (M12 X-coded)	
	-	1x 2.5GbE Ethernet by Intel I226-IT (M12 X-coded)
PoE+	4x IEEE 802.3at PoE+ PSE with 100 W total power budget	
CAN Bus	2x isolated CAN 2.0 port, supporting SocketCAN in Linux	
USB	2x Type-C USB 3.2 Gen1x1 (5Gbps) ports (shared DisplayPort) 2x USB 2.0 ports (M12 A-coded)	
Video Port	2x Type-C USB connector supporting DP output (shared USB3.2 Gen1x1)	
Serial Port	2x isolated 3-wire RS-232 ports (COM1/ COM2)	-
	1x isolated 3-wire RS232 (COM3) & 1x RS-422/ 485 port (COM4)	

	SEMIL-2007	SEMIL-2008
Storage Interface		
SATA HDD	2x Internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1	
M.2	1x M.2 2280 M key NVMe socket (PCIe Gen4x4) for NVMe SSD	
Expansion Bus		
Mini PCI-E	3x full-size mini PCI Express socket with SIM slot	
M.2	1x M.2 2242/3052 B key socket with dual SIM slot for M.2 5G/ 4G module	
	1x M.2 2230 E key socket for Wi-Fi	-
Power Supply		
DC Input	8V to 48V DC input, with reverse polarity protection (M12 L-coded)	
Ignition Control	Built-in ignition power control (IGN/ GND signal via M12 L-coded connector)	
Mechanical		
Dimension	220mm (W) x 310mm (D) x 90.5mm (H)	
Weight	6 kg	
Mounting	Rack-mounting (optional) and wall-mounting (standard)	
Environmental		
Operating Temperature	**With 35W CPU** -40°C to 70°C **With CPU operating >= 65W CPU** -40°C to 70°C (configured as 35W TDP mode) -40°C to 60°C (configured as 65W TDP mode)	
Storage Temperature	-40°C ~85°C	
Humidity	10%~90% , non-condensing	
Vibration	MIL-STD-810H, 514.8C-IV. Category 4	
Shock	MIL-STD-810H, 516.8 Procedure I	
EMC	EN 50121 (EN 50155 EMC) CE/FCC Class A, according to EN 55032 & EN 55035	
Ingress Protection	IP69K	

Appearance

1x GbE
(X-coded)
4x PoE +
(X-coded)
2x 10 GbE
(X-coded)

2x CAN
(A-coded)

8 to 48V DC IN/ IGN
(L-coded)

4x COM
(A-coded)

2x USB2.0
(A-coded)

2x USB3.2/ DP

SEMIL-2007

1x GbE
(X-coded)
4x PoE +
(X-coded)
2x 10 GbE
(X-coded)

2x COM
(A-coded)

8 to 48V DC IN/ IGN
(L-coded)

2x CAN
(A-coded)

1x 2.5GbE
(A-coded)

2x USB2.0
(A-coded)

2x USB3.2/ DP

SEMIL-2008

Dimensions

Unit : mm

310

90.5

220
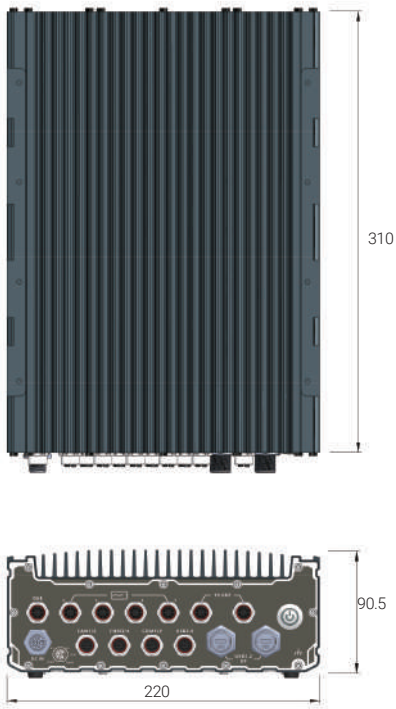
Mounting Configuration

▲ SEMIL 19" rack-monut

▲ SEMIL wall-mount
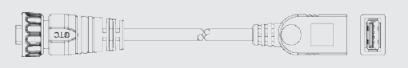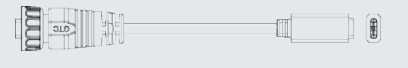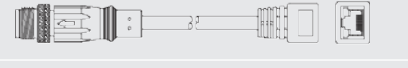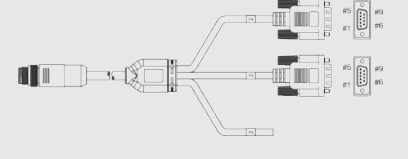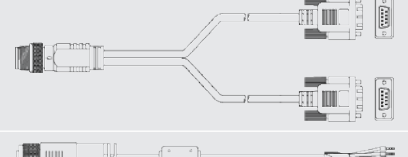
Ordering Information

Model No.	Product Description
SEMIL-2007	19"/2 rack mount IP69K waterproof computer supporting Intel® 14th/ 13th/ 12th-Gen Core™ processor with 2x M12 10GbE and 4x M12 PoE+ ports
SEMIL-2008	19"/2 rack mount IP69K waterproof computer supporting Intel® 14th / 13th/ 12th-Gen Core™ processor with M12 ports of 2x 10GbE, 1x GbE, 1x 2.5GbE and 4x 2.5GbE PoE+ ports

Optional Accessories

PA-280W-CW6P-2P	280W AC-DC power adapter 24V 11.67A, 85~264VAC, -30~+70°C w/ Wafer FML6P to 2P End Terminal cable for AWP/SEMIL
PA-600W-C4PY-4P	600W AC-DC power adapter 24V 25A, 85~264VAC, -20~+70°C, w/ 4PY Terminal to 4P End Terminal cable for AWP/SEMIL
JPlate-SL	Joint plate for dual SEMIL assembly (for SEMIL-2000)
Rmkit-SL	Rack mount for single SEMIL (for SEMIL-2000)

SEMIL-2000 Series

Type	Model Name	Description
	Cbl-TpCPlug-DPM-1M	TypeC Male Plug to DP Male Cable, Length : 1M
	Cbl-TpCPlug-U3TA-50CM	TypeC Male Plug to USB3.0 Type-A FML, Length: 50CM
	Cbl-TpCPlug-UTpCF-50CM	TypeC Male Plug to USB Type-C FML Cable, Length : 50CM
	Cbl-M12X8M-RJ45-500CM	M12(8-pole-X-coded) to RJ45, CAT6, Length : 500CM
	Cbl-M12A8M-2U2TA-180CM1	M12 (8-pole-A-coded) to 2xUSB 2.0 type A (female), Length: 180CM
	Cbl-M12A8M-2DB9M_OW2-180CM1	M12 A-Code Male 8P to x2 DB9 Male+2P, Length: 180CM
	Cbl-M12A8M-2DB9M-180CM	M12 (8-pole-A-coded male) to 2x DB9 male, Length: 180CM
	Cbl-M12L5F-CordEnd5-180CM	M12 L-Code 5P(FML) to Cord End Terminal 5P, Length: 1.8M

Cable Kit

SEMIL-2000 M12 cable kit		
Cblkit-M12-SEMIL2007	7x Cbl-M12X8M-RJ45-500CM	1x Cbl-M12A8M-2U2TA-180CM1
	2x Cbl-M12A8M-2DB9M_OW2-180CM1 (COM1/2 & CAN1/2)	1x Cbl-M12A8M-2DB9M-180CM (COM3/4)
	1x Cbl-M12L5F-CordEnd5-180CM	
Cblkit-M12-SEMIL2008	8x Cbl-M12X8M-RJ45-500CM	1x Cbl-M12A8M-2U2TA-180CM1
	1x Cbl-M12A8M-2DB9M_OW2-180CM1 (CAN1/2)	1x Cbl-M12A8M-2DB9M-180CM (COM3/4)
	1x Cbl-M12L5F-CordEnd5-180CM	