

# ECS 4700

13th Gen Intel® Core™ i7/i5 Processor (Raptor Lake-P)  
EN60945 Certified Marine-grade Rugged Embedded System



ECS-4700-PoER



- Low-power 13th Gen Intel® Core™ i7/i5 Processor (Raptor Lake-P), 28W TDP GPU
- Marine-grade Designs, EN60945 EMC compliant
- Supports Intel® vPro, TSN, TCC, and TPM 2.0
- 2 2.5G LAN, 4 PoE+ LAN, Isolated PoE Protection
- 2 USB 3.2 Gen 2, 1 USB 3.2 Gen 2x2 Type-C supports up to 20Gbps data transfer
- Compact Design, fanless -25°C to 75°C Operating Temperature
- DC 9V to 50V Redundant Power Input, Software Ignition Power Control
- Fully supports Intel OpenVINO toolkit for AI Computing
- Supports 5G/WiFi/4G/LTE/GPRS/UMTS Wireless Communication

**New Generation AI-Ready Platform | Compact Integrated Features**  
**Marine-grade System Reliability | Optimized System Manageability**

The Rugged Science ECS-4700 is an EN60945 Certified Marine-grade Rugged Embedded System. Equipped with a 13th Gen Intel® Core™ i7/i5 Processor featuring Intel® SoC and a 28W TDP CPU, the ECS-4700 excels in AI applications under extreme conditions. Its marine-grade build ensures EN60945 compliance, isolated power protection, and it boasts 6 GigE LAN ports with 4 PoE+, 2 DP, and 1 USB Type-C with display capability up to 4K. The ECS-4700 supports DDR5 memory up to 96GB, offers a DC 9V to 50V Redundant Power Input, includes Software Ignition Control, and operates fanlessly within a temperature range of -25°C to 75°C.



# Specifications

RS-06032024

## System

Processor	- Onboard 14-core 13th Gen Intel® Core™ i7-1370PE Processor (Raptor Lake-P) - Onboard 10-core 13th Gen Intel® Core™ i7-1365UE Processor (Raptor Lake-P) - Onboard 10-core 13th Gen Intel® Core™ i5-1345UE Processor (Raptor Lake-P)
Chipset	Intel® SoC
GPU	Intel® Iris X®
BIOS	AMI
SIO	IT8786E
Memory	2 DDR5 4800MHz SO-DIMM, up to 96GB
OS	Windows 11, Windows 10, Linux

## I/O Interface

Serial	4 COM RS-232/422/485
USB	- 2 USB 3.2 Gen2 Type-A - 1 USB 3.2 Gen 2x2 Type-C, support DP 1.4a - 2 USB 2.0 Type-A
Isolated DIO	16 Isolated DIO : 8 DI, 8 DO
Display	- 2 DisplayPort 1.4a : Up to 3840 x 2160 @60Hz - 1 DisplayPort 1.4a : Up to 3840 x 2160 @60Hz by USB Type-C - 1 HDMI2.0 : Up to 3840 x 2160 @60Hz
LED	Power, HDD, PoE
SIM	1 External Nano SIM Socket

## Expansion

M.2	- 1 M.2 Key B Socket (2280/3052, PCIe x2/USB 3 Default) - 1 M.2 Key E Socket (2230, PCIe x1)
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## Storage

SATA	2 SATA III (6Gbps) support software RAID 0, 1 - 2.5" SSD/HDD internal bracket ( <b>ECS-4700-PoE, ECS-4700-2G</b> ) - 2 Front-access 2.5" SSD/HDD Tray ( <b>ECS-4700-PoER</b> )
M.2	1 M.2 Key M Socket (2280, PCIe x4)

## Audio

Audio Codec	Realtek® ALC888S-VD, 7.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out

## Ethernet

LAN 1	Intel® I226 2.5GigE LAN supports TSN
LAN 2	Intel® I226 2.5GigE LAN supports TSN

## PoE (ECS-4700-PoE/PoER)

LAN 3	GigE IEEE 802.3at (25.5W/48V) PoE* by Intel® I350
LAN 4	GigE IEEE 802.3at (25.5W/48V) PoE* by Intel® I350
LAN 5	GigE IEEE 802.3at (25.5W/48V) PoE* by Intel® I350
LAN 6	GigE IEEE 802.3at (25.5W/48V) PoE* by Intel® I350

Remind : PoE power budget supports up to 25.5W/each, total 35W.

## Power

Power Input 1	DC 9V to 50V, Redundant Power Input
Power Input 2	DC 9V to 50V, Redundant Power Input
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Ignition Control	16-mode Software Ignition Control
Remote Switch	3-pin Terminal Block

## Others

TPM	Infineon SLB9672 supports TPM 2.0, SPI Interface
Watchdog Timer	Reset : 1 to 255 sec./min. per step
HW Monitor	Monitoring temperature, voltages. Auto throttling control when CPU overheats.

## Mechanical

Dimensions	<b>ECS-4700</b> : 256.8mm x 141.0mm x 48.1mm (10.11" x 5.55" x 1.89") <b>ECS-4700F</b> : 256.8mm x 141.0mm x 54.9mm (10.11" x 5.55" x 2.16")
Weight	<b>ECS-4700</b> : 2.1kg (4.6lb) <b>ECS-4700F</b> : 2.2kg (4.8lb)
Mounting	- Wallmount by mounting bracket - VESA Mount (Optional) - DIN Rail Mount (Optional)

## Environment

Operating Temperature	-25°C to 75°C (-13°F to 167°F) with air flow
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @75°C
Vibration	IEC 60068-2-64
Shock	IEC 60068-2-27
EMC	CE, FCC, EN50155, EN50121-3-2, EN60945

\*Environmental ratings for base system only.

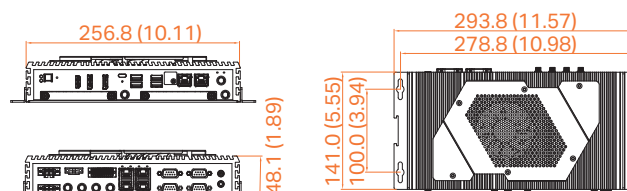
## Order Information

Model	CPU	LAN		USB 3.2	SSD Tray	Isolated DIO (GPIO)	Fan
		2.5G	PoE*				
ECS-4700F-PoER-1370PE	Core i7-1370PE	4	4	3	2	16	Y
ECS-4700-PoER-1365UE	Core i7-1365UE						
ECS-4700-PoER-1345UE	Core i5-1345UE	4	4	3	2	16	N/A
ECS-4700F-PoE-1370PE	Core i7-1370PE	2	4	3	-	16	Y
ECS-4700-PoE-1365UE	Core i7-1365UE						
ECS-4700-PoE-1345UE	Core i5-1345UE	4	4	3	-	16	N/A
ECS-4700-2G-1365UE	Core i7-1365UE	-	-	-	-	(16)	N/A
ECS-4700-2G-1345UE	Core i5-1345UE	-	-	-	-	(16)	N/A

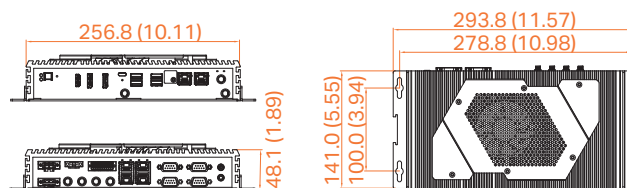
## Dimensions & Drawing

Unit : mm (inch)

### ECS-4700F-PoER



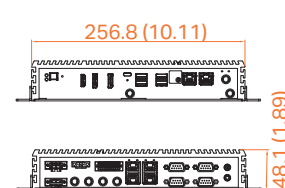
### ECS-4700F-PoE



### ECS-4700-PoER



### ECS-4700-PoE



### ECS-4700-2G

