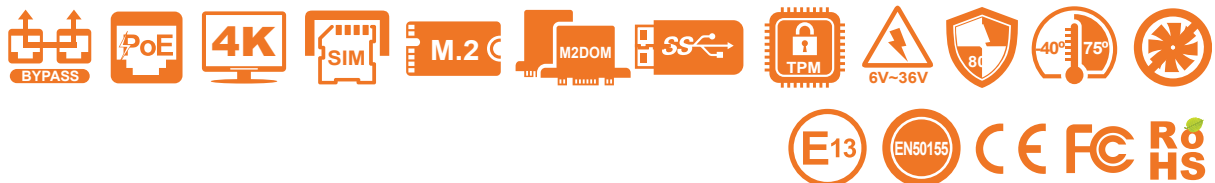


## ECS-9160 RUGGED EMBEDDED COMPUTER

Quad Core Intel® Xeon®/Core™ i7/i5/i3 (Skylake/Kaby Lake) Fanless LAN Switch System with Intel® C236, 2 GigE LAN, 4 GigE LAN Switch with PoE+/Bypass, 2 Front-access SSD/HDD Tray, 8 USB 3.0, M2DOM, M.2 Socket, 3 SIM, 16 GPIO, High Performance, Rugged, -40°C to 75°C Extended Temperature

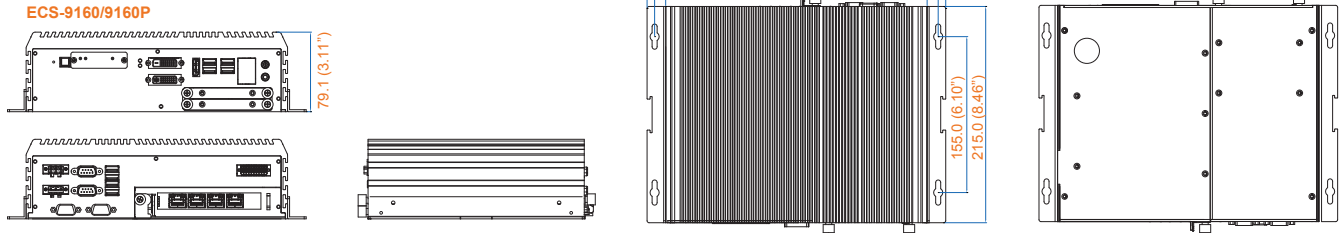


- 2 GigE LAN, 4 GigE LAN Switch with IEEE 802.3at PoE+
- Support hardware LAN Bypass mode
- Expansion: 3 Mini PCIe/mSATA, 1 Key-M M.2
- Storage: 2 2.5" SSD Tray, 1 CFAST, 1 M2DOM, 2 SATA III
- 6V to 36V DC Power Input with 80V Surge Protection
- Configurable Ignition Power Control
- Fanless, -40°C to 75°C Operating Temperature
- 16 GPIO, 8 USB 3.0
- LGA 1151 Socket supports workstation-grade Intel® Xeon®/Core™ i7/i5/i3 Processor with C236
- DVI-I, DVI-D & DisplayPort interfaces, up to 4K display
- 3 External SIM Socket for 3G/4G/LTE/WiFi/GPRS/UMTS



# Dimensions & Drawing

Unit: mm (inch)



## Specifications

### System

<b>Processor</b>	Quad Core Intel® Xeon®/Core™ i7/i5/i3 Processor (Skylake-S/Kaby Lake-S)
<b>Chipset</b>	Intel® C236
<b>BIOS</b>	AMI
<b>SIO</b>	IT8786E
<b>Memory</b>	2 DDR4 2133MHz SO-DIMM, up to 32GB
<b>OS</b>	Windows 10, Windows 8.1, Windows 7, Linux

### I/O Interface

<b>Serial</b>	4 COM RS-232/ 422/ 485 (ESD 8KV)
<b>USB</b>	• 8 USB 3.0 (4 Front, 4 Rear) • 1 USB 2.0 (Internal)
<b>DIO</b>	16 GPIO
<b>LED</b>	Power, HDD, Wireless, PoE
<b>SIM Card</b>	3 External SIM Card Socket

### Expansion

<b>Mini PCIe M.2</b>	3 Full-size for PCIe/ USB/ External SIM Card/ mSATA 1 M.2 Socket (Key ID : M)
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### Graphics

<b>Processor Interface</b>	Intel® HD Graphics 630/530
	• DVI-I : Up to 1920 x 1200 @ 60Hz
	• DVI-D : Up to 1920 x 1200 @ 60Hz
	• DisplayPort : Up to 4096 x 2304 @ 60Hz

### Storage

<b>SATA</b>	2 SATA III (6Gbps) support S/W RAID 0, 1
<b>mSATA</b>	3 SATA III (Mini PCIe Type, 6Gbps)
<b>M2DOM</b>	1 PCIe 3.0 (8GT/s)
<b>Storage Device</b>	• 1 CFAST Socket, Push-in/ Push-out Ejector • 2 Front-access 2.5" SSD/ HDD Tray

### Audio

<b>Audio Codec</b>	Realtek ALC892, 5.1 Channel HD Audio
<b>Audio Interface</b>	1 Mic-in, 1 Line-out

### Ethernet

<b>LAN 1</b>	Intel® I219LM GigE LAN supports iAMT 11.0
<b>LAN 2</b>	Intel® I210 GigE LAN

### LAN Switch

<b>LAN 3 to LAN 6</b>	GigE IEEE 802.3at (25.5W/48W) PoE* by Intel® I210, supporting LAN bypass mode
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### Power

<b>Power Input</b>	6V to 36V, DC-in
<b>Power Interface</b>	3-pin Terminal Block : V+, V-, Frame Ground
<b>Ignition Control</b>	16 Mode (Internal)
<b>Remote Switch</b>	3-pin Terminal Block
<b>Surge Protection</b>	Up to 80V/1ms Transient Power

### Others

<b>TPM</b>	Optional Infineon SLB9665 supports TPM 2.0, LPC Interface
<b>Watchdog Timer</b>	Reset : 1 to 255 sec./min. per step
<b>Smart Management</b>	Wake on LAN, PXE supported
<b>HW Monitor</b>	Monitoring temperature, voltages. Auto throttling control when CPU overheats.

### Mechanical

<b>Dimensions (WxLxH)</b>	260mm x 215mm x 79mm (10.2" x 8.5" x 3.1")
<b>Weight</b>	4.2 kg (9.26 lb)
<b>Mounting</b>	• Wallmount by mounting bracket • DIN Rail Mount (Optional) • 2U Rackmount (Optional)

### Environment

<b>Operating Temp.</b>	<b>35W TDP CPU :</b> • Core™ i7, i5, i3 : -40°C to 75°C (-40°F to 167°F) • Xeon® E3-1268L v5 : -40°C to 70°C (-40°F to 158°F)
	<b>65W TDP CPU :</b> Core™ i7, i5, i3 : -40°C to 55°C (-40°F to 131°F)
	<b>80W TDP CPU :</b> Xeon® E3-1275 v6, E3-1275 v5, E3-1225 v5 : -40°C to 45°C (-40°F to 113°F)
<b>Storage Temp.</b>	-40°C to 85°C (-40°F to 185°F)
<b>Humidity</b>	5% to 95% Humidity, non-condensing
<b>Relative Humidity</b>	95% @ 75°C
<b>Shock</b>	• IEC 60068-2-27 • SSD : 50G @ wallmount, Half-sine, 11ms • IEC 60068-2-64
<b>Vibration</b>	• SSD : 5Grms, 5Hz to 500Hz, 3 Axis
<b>EMC</b>	E13, CE, FCC, EN50155, EN50121-3-2

## Order Information

<b>ECS-9160</b>	• ECS-9100, 2 GigE LAN, 4 GigE LAN Switch w/PoE*, 2 SSD Tray, 8 USB 3.0, 4 COM, 3 SIM, 16 GPIO
<b>ECS-9160P</b>	• ECS-9100, 2 GigE LAN, 4 GigE LAN Switch w/LAN Bypass, 2 SSD Tray, 8 USB 3.0, 4 COM, 3 SIM, 16 GPIO

### CPU List

Series	CPU	Cache (MB)	Turbo Freq. (GHz)	TDP (W)	ECC Memory
Intel® Xeon®	E3-1275 v6	8	4.2	80	Y
	E3-1275 v5		4	80	
	E3-1225 v5		3.7	80	
	E3-1268L v5		3.4	35	
Intel® Core™	i7-7700	8	4.2	65	NA
	i7-7700T		3.8	35	
	i7-6700		4	65	
	i7-6700TE		3.4	35	
	i5-7500	6	3.8	65	NA
	i5-7500T		3.3	35	
	i5-6500		3.6	65	
	i5-6500TE	3.3	35		
	i3-7101E	3	3.9	65	Y
	i3-7101TE		3.4	35	
i3-6100	4	3.7	65	Y	
i3-6100TE		2.7	35		

ECS-9160-20180710

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