

# IVH-9204MX ICY Series

Workstation-grade Intel® Xeon®/Core™ i7/i5/i3 Processor  
EN50155 & EN45545 In-Vehicle Fanless System

- LGA 1151 Socket supports workstation-grade Intel® Xeon®/Core™ i7/i5/i3 Processor (Kaby Lake/Skylake) with Intel® C236 Chipset
- 6 Independent GigE LAN with 4 X-coded M12 IEEE 802.3at PoE+
- 16V to 160V DC Power Input with 4242V DC Isolation, up to 500V Surge Protection
- 6 front-access 7mm to 15mm height SSD/HDD Tray, up to 24TB
- 2 DDR4 2400MHz SO-DIMM, up to 32GB (ECC/Non-ECC)
- Fanless design for railway in-vehicle applications, fully compliant with EN50155
- -40°C to 70°C Extended Operating Temperature
- 32 Isolated DIO, 8 USB 3.0, 4 COM, 2 Mini PCIe, 6 SATA
- Triple independent displays : DVI-I, DVI-D and DisplayPort, up to 4K resolution
- Configurable Ignition Power Control, UPS supported
- 3 External SIM sockets for WiFi/4G/3G/LTE/GPRS/UMTS
- EN50155, EN50121-3-2 and EN45545-2 compliant



Advanced Driver Assistance System (ADAS)



In-vehicle Surveillance



Mobile In-vehicle Communication



Pantograph Inspection



# Specifications

## System

Processor	Quad Core Intel® Xeon®/Core™ i7/i5/i3 Processor (Kaby Lake-S/Skylake-S)
Chipset	Intel® C236
BIOS	AMI
SIO	IT8786E
Memory	2 DDR4 2400/2133 MHz SO-DIMM, up to 32GB (ECC/Non-ECC)
OS	Windows 10, Windows 8.1, Windows 7, Linux

## I/O Interface

Serial	4 COM RS-232/422/485 (ESD 8KV)
USB	- 8 USB 3.0 (External) - 1 USB 2.0 (Internal)
Isolated DIO	32 Isolated DIO : 16 DI, 16 DO
LED	Power, HDD, Wireless, PoE
SIM Card	3 External SIM Card Socket

## Expansion

Mini PCIe	2 Full-size Mini PCIe sockets for PCIe/USB/External SIM Card/mSATA
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## Graphics

Graphics Processor	Intel® HD Graphics 630/530
Interface	Triple independent displays : - 1 DVI-I : Up to 1920 x 1200 @60Hz - 1 DVI-D : Up to 1920 x 1200 @60Hz - 1 DisplayPort : Up to 4096 x 2304 @60Hz

## Storage

SATA	6 SATA III (6Gbps) support S/W RAID 0, 1, 5, 10
mSATA	2 SATA III (Mini PCIe Type, 6Gbps)
Storage Device	- 1 CFast Socket, Push-in/Push-out Ejector - 6 Front-access 2.5" SSD/HDD Tray (15mm in height)

## Audio

Audio Codec	Realtek ALC892, 5.1 Channel HD Audio
Audio Interface	1 Mic-in, 1 Line-out

## Ethernet

LAN 1	Intel® I219LM GigE LAN supports iAMT 11.0
LAN 2	Intel® I210 GigE LAN

## PoE (X-coded M12)

LAN 3 to LAN 6	GigE IEEE 802.3at (25.5W/48V) PoE+ (X-coded M12) by Intel® I210 with Power On/Off Control
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## Power

Power Input	16V to 160V, DC-in
Power Interface	3-pin Terminal Block : V+, V-, Frame Ground
Ignition Control	16 Mode (Internal)
Remote Switch	3-pin Terminal Block : On, Off, IGN
Isolation	4242V DC
Surge Protection	0.5KV DC 8/20us Surge
UPS (UPM-100)	Optional supports 3 stackable 18650 LFO batteries (1.1mAh)

## Others

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

## Mechanical

Dimensions	260.0mm x 215.0mm x 155.0mm (10.24" x 8.46" x 6.10")
Weight	6.0 kg (13.23 lb)
Mounting	Wallmount by mounting bracket

## Environment

Operating Temp.	<b>IVH-9204MX ICYU</b> 35W/65W TDP CPU : -40°C to 55°C (-40°F to 131°F) 80W TDP CPU : -40°C to 45°C (-40°F to 113°F)
	<b>IVH-9204MX ICY</b> 35W TDP CPU : -40°C to 70°C (-40°F to 167°F) 65W TDP CPU : -40°C to 55°C (-40°F to 131°F) 80W TDP CPU : -40°C to 45°C (-40°F to 113°F)
	Storage Temp. -40°C to 85°C (-40°F to 185°F)
	Humidity 5% to 95% Humidity, non-condensing
Relative Humidity	95% @ 70°C
Shock	- IEC 60068-2-27 - SSD : 50G @ wallmount, Half-sine, 11ms
Vibration	- IEC 60068-2-64 - SSD : 5Grms, 5Hz to 500Hz, 3 Axis
EMC	CE, FCC, EN50155, EN50121-3-2, EN45545-2

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# Order Information

Model	GigE LAN	M12 PoE*	SSD Tray	USB 3.0	COM	SIM	Isolated DIO	UPS
IVH-9204MX-ICYU	6	4	6	8	4	3	32	Yes
IVH-9204MX-ICY								NA

## CPU List

Series	CPU	Cache (MB)	Turbo Freq. (GHz)	TDP (W)	ECC Memory	
Intel® Xeon®	E3-1275 v6	8	4.2	80	Yes	
	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
	i3-7101TE			3.4		35
i3-6100	4	3.7	65	Yes		
i3-6100TE		2.7	35			

## Accessories

DDR4 16G	Certified DDR4 16GB 2400/2133 MHz RAM
DDR4 8G	Certified DDR4 8GB 2400/2133 MHz RAM
DDR4 4G	Certified DDR4 4GB 2400/2133 MHz RAM
PWA-280W-WT	280W, 24V, 85V AC to 264V AC Power Adapter with 3-pin Terminal Block, Wide Temperature -30°C to +70°C
PWA-160W-WT	160W, 24V, 85V AC to 264V AC Power Adapter with 3-pin Terminal Block, Wide Temperature -30°C to +70°C
TMK2-20P-100	Terminal Block 20-pin to Terminal Block 20-pin Cable, 100cm
TMK2-20P-500	Terminal Block 20-pin to Terminal Block 20-pin Cable, 500cm
TMB-TMBK-20P	Terminal Board with One 20-pin Terminal Block Connector and DIN-Rail Mounting
4G Module	Mini PCIe 4G/GPS Module with Antenna
WiFi & Bluetooth	WiFi & Bluetooth Module with Antenna

# Dimensions & Drawing

Unit : mm (inch)

