Lanner

Intelligent Edge

Industrial Computing Appliances for Smart City, Transportation, Manufacturing and Critical Infrastructure

Purpose-built Industrial Computing Platforms for Intelligent Edge

The rapid adoption of industrial IoT technology in recent years is driving solution providers to reallocate the resources for data analysis from the centralized cloud to the distributed edges, where tremendous volume of data is generated from the edge devices and sensors. Reallocating computing and analytics to Intelligent Edges can reduce the latency, cost and security arise from communications between the data source and the data centers.

Over the past ten years, Lanner has dedicated itself in supplying millions of state-of-the-art industrial computing platforms that have been deployed worldwide as Intelligent Edge Appliances to perform analysis, connectivity and storage of the data generated within proximity of sensor and devices. Our comprehensive rugged computing platforms have met various specifications and standards required by the mainstream Intelligent Edge verticals. Today, we have comprehensive product lines designed and manufactured for industrial AI, machine vision, transportation, intelligent video analytics, substation automation and OT network security.

As we are entering the age of 5G, Lanner's Intelligent Edge BU will continue to strengthen our product range by designing tailor-made hardware platforms that consolidate the latest technologies in x86 computing, versatile I/Os, rugged design and LTE connectivity, to help accelerate real-time data analysis at the edge, while reducing deployment efforts and costs for intelligent edge solutions.

Jeans Tseng
CTO

Intelligent Edge
Solution Overview

Industrial Edge Computers

Lanner delivers top-of-the-line x86 industrial Appliances designed for data acquisition and analysis. Featuring compact design, flexible I/O and PCIe expansion, Lanner fanless industrial platforms have been meeting many challenging specifications required by most IIoT edge computing applications.

- Machine Automation Controller
- Building Automation
- Environment Monitoring
- Fleet Management

Video Analytic Platforms

Lanner provides a wide range of configure-to-order, real-time AI-based video processing platforms deployed in critical infrastructure and rugged industrial conditions, such as public safety, digital retailing, public transit surveillance and production inspection.

- Retail Video Analytics
- Machine Vision Inspection System
- Traffic Monitoring
- In-vehicle/In-train Surveillance
- Physical Security

The rise of industrial IoT has been an enormous driving force for automation, control technology and industrial communications. To meet the requirements for mission-critical applications for smart manufacturing, substation automation, intelligent transportation and industrial cyber security, Lanner offers a wide selection of fanless industrial computing platforms featuring the cutting-edge technologies, rugged design, versatile I/Os and customizable options.

Industrial SD-WAN Platforms

Lanner provides fanless rugged Multi-WAN uCPE platofms, featuring IoT-enhanced CPU with 5G/LTE connectivity and environmental endurance. These uCPE platforms consume low volume of power and delivers the required performance for SD-WAN deployed at remote, distributed locations or mobile vehicles

- 5G Outdoor Gateway for Remote Sites
- Mobile SD-WAN and 5G/LTE Failover
- Rugged Gateway for Vehicle and Railway
- Wayside / Roadside communication Gateway

Industrial Security Appliances

Our rugged industrial cyber security platforms provide the needed network security protection for ICS/SCADA networks in critical infrastructures. Our platforms are designed to conduct protocol filtering, packet inspection, white-listing and network traffic monitoring.


- Critical Infrastructure Cyber Security
- Industrial UTM / Firewall / DPI
- ICS/SCADA Cyber Security
- IIoT Security Gateway
- IT-OT Security Convergence

Industrial Edge Computers

Lanner's industrial computing appliances are designed for edge gateway and smart manufacturing applications, offering stability, longevity, high availability and a perfect balance between size, cost, performance and power consumption.
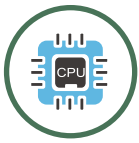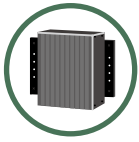
High-Performance CPU
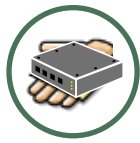
Compact Design

MIO Expansion Layer

Mounting Options

Easy-to-open Chassis
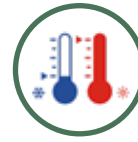
Wide Temperature Range

Fanless Design

5G/LTE/Wifi6 Ready
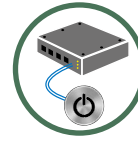
Easy Access to Power Switch

Factory Automation

LEC-7242

- Intel® Celeron® N3350 / Atom® X5-E3940 CPU

- 2x LAN, 1x COM

- 2x USB 3.0, 1x Display Port, 1x HDMI

- 1x M.2 w/ Dual SIM

- TPM Support

- 20°C~70°C Operating Temperatures

LEC-2290

- Intel® Core™ i7-8700T/i7-8700

- 2x DDR4 2133/2400 SO-DIMM, Max. 32GB

- 2x RJ45 GbE LAN, 4x PoE,

- 4x USB3.0, 6x COM, 8x DI & 8x DO

- 2x Removable HDD/SSD External Slot

- 1x PCIe Express, 1x Mini-PCIe , 1x M.2

Panel PC

Industrial Switch

LEC-7242

LEC-2290

PLC

Flow Meter

Motion Controller

PLC

Temperature Meter

Pressure Meter
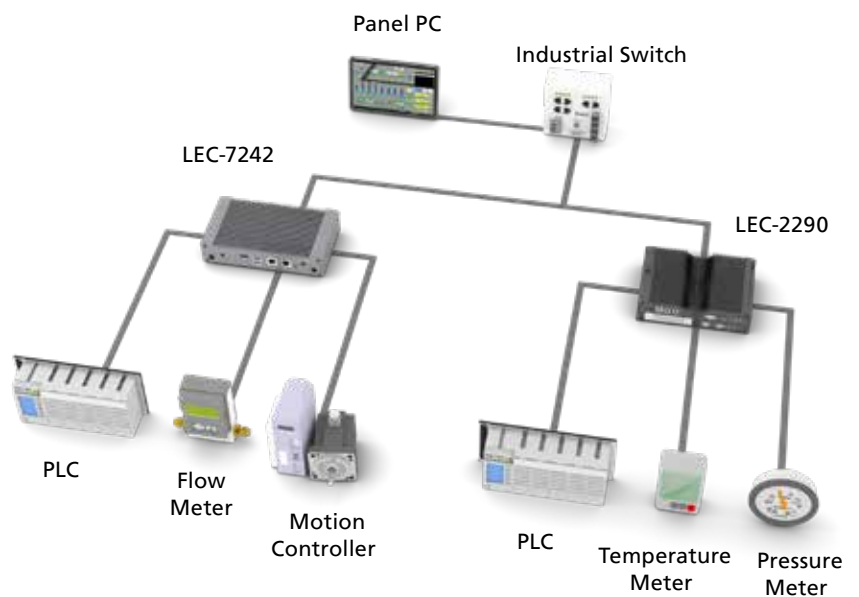
Industrial Edge Computers

| | Intel Apollo Lake | Intel Bay Trail | Intel Bay Trail |

Model Name		LEC-7242	LEC-7230/7230M/7230L	LEC-7233
Processor System	CPU	Intel® Celeron® N3350/Atom® X5-E3940	Intel® Celeron® J1900/N2930 or Intel® Atom™ E3845	Intel® Celeron® N2807
	Frequency	2.4 GHz/1.8 GHz	2 GHz/1.83 GHz/1.91 GHz	1.58 GHz
	Core Number	2C/4C	4C	2C
	Chipset	SOC	SOC	SOC
Fanless		Yes	Yes	Yes
Memory	Technology	Onboard Non-ECC LPDDR4 2400	DDR3L 1333 MHz	DDR3L 1333 MHz
	Max. Capacity	8 GB (Default 4 GB)	8GB	4GB
	Socket	-	1x 204-pin SODIMM	1x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics 500	Intel® HD Graphics	Intel® HD Graphics
	VGA	-	1x VGA, 1600 x 1200	-
	DVI-D	-	-	-
	HDMI	1x HDMI, 1x Display Port	1x HDMI,1920 x 1080	1x HDMI, 1920 x 1080
Audio	Codec	-	Realtek ALC886 (LEC-7230), ALC662 (LEC-7230M/L)	-
	Interface	-	2x Phone Jack for MIC-in and Line-out	-
Ethernet	Controller	Intel® i210-AT/ i210-IT	Intel® i210 (LEC-7230), Intel® i211-AT (LEC/7230M/L)	Intel® i211
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	2x RJ45	2x RJ45	3x RJ45
Storage	Type	-	PATA	SATA II
	Installation	-	1x CF Type I/II Socket	1x mSATA Socket
	Type	eMMC & SATA (Design Reserved)	SATA II	SATA II
	Installation	Onboard 64GB eMMC, 1x SATA (Design Reserved)	1x 2.5" HDD/SSD Drive Bay	1x SATA Connector (Reserved)
I/O	Serial Port	1x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male	2x RS-232/485, D-Sub9 Male
	Digital I/O	-	2x DI, 2x DO with +5V TTL (LEC-7230)	4x DI, 4x DO, 1x GND
	USB 2.0	-	2x Type A	2 x Type A
	USB 3.0	2x Type A	1x Type A	1 x Type A
	Power-On/Reset Button	1x Power On/Off, 1x Reset	1x Power On/Off	1x Power On/Off, 1x Reset
	Remote	-	Yes	-
	LED	Yes	Power/HDD/3G	Power/HDD/3G
	Antenna Hole	4x SMA Antenna Holes	1x SMA Antenna Hole	1x SMA Antenna Hole
Expansion Interface	Mini-PCIe	1x M.2 3042 B+M Key Socket w/ Dual SIM for LTE or Wifi, 1x Mini PCIe Socket w/ Dual SIM for LTE	1x Full-sized Socket with SIM Card Reader	1x Full-sized socket with SIM Card Reader 1x Half-sized Socket
	M.2	-	-	-
	PCI Express	-	-	-
Watchdog Timer		Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1 ~ 255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1 ~ 255 Level Time Interval System Reset, Software Programmable
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	+12VDC	12 VDC	12 VDC
	Connector	DC Jack With Lock	DC Jack With Lock	DC Jack With Lock
	Power Consumption (Idle)	6.3W	8W(LEC-7230), 7.36W (LEC-7230M/L)	7W
	Power Consumption (Full Load)	11.8W	12.5W (LEC-7230), 11.43W (LEC-7230M/L)	11W
	Power Adaptor	100~240Vac, 60W	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/3A 36W	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/3A 36W
Environment	Operating Temperature	0°C~50°C / -20°C~70°C	LEC-7230: 0°C~55°C, LEC-7230L: 0°C~40°C LEC-7230M: 0°C~60°C	0°C~50°C
	Storage Temperature	-30°C~70°C	-20°C~70°C	-20°C~70°C
	Relative Humidity	5%~95% (Non-condensing)	5%~95%, Non-condensing	5%~95%, Non-condensing
	Vibration	-	IEC 60068-2-64, 0.5Grms, Random 5~500 Hz, 40 Mins/Axis	IEC 60068-2-64, 0.5Grms, Random 5~500 Hz, 40 Mins/Axis
Mechanical	Dimension (W x H x D)	168 x 40 x 145 mm	LEC-7230: 198 x 42 x 145 mm, LEC-7230L: 195.6 x 41 x 146.8 mm LEC-7230M: 198 x 41 x 143.8 mm	152 x 30 x 143 mm
	Construction	Aluminum Extrusion + SGCC	LEC-7230: Aluminum, LEC-7230L: Plastic LEC-7230M: Aluminum + SGCC	SGCC
	Weight	1 kg	LEC-7230: 1.07 kg, LEC-7230L: 0.9 kg, LEC-7230M: 1.2 kg	0.9 kg
	Mounting	Wallmount	Rack, VESA, DIN-Rail, Wallmount	VESA, Wallmount
Driver Support	Microsoft Windows	WES7E, Win7 Pro FES, WE 8.1 Industry Pro, Win 10 IoT	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro
	Linux	Kernel 3.12	Kernel 3.12	Kernel 3.12
Certification	EMC	CE/FCC Class A, UL	CE/FCC Class A, UL	CE,FCC Class A
Ordering Information		LEC-7242A/LEC-7242B/LEC-7242C/LEC-7242D	LEC-7230-J11A/LEC-7230-N11A/LEC-7230-E51A LEC-7230L-J11A/LEC-7230M-J11A	LEC-7233

Industrial Edge Computer

| | | Intel Bay Trail | Intel Bay Trail | Intel Apollo Lake |

Model Name		LEC-3030	LEC-3031	IIoT-I330 **NEW**
Processor System	CPU	LEC-3030A: Intel® Celeron® N2807 LEC-3030T: Intel® Atom E3815	Intel® Atom E3825	Intel® Atom™ x7-E3950
	Frequency	1.58Ghz / 1.46Ghz	1.33Ghz	**1.6 GHz**
	Core Number	2C / 1C	2C	4C
	BIOS	AMI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
	Chipset	SoC	SoC	SoC
Fanless		Yes	Yes	Yes
Memory	Technology	DDR3L 1333/1066 MHz	DDR3L 1066MHz	DDR3L , non ECC
	Max. Capacity	4GB / 8GB	8GB	8GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel® HD Graphics	integrated HD Graphics 500
	VGA	1x VGA	1x VGA	1x DisplayPort
Ethernet	Controller	Intel® i210	Intel® i210	Intel i210-IT /AT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	2 x GbE RJ45	2 or 4x GbE RJ45	SKU A: 4x GbE RJ45, SKU B: 2x GbE RJ45+2x SFP, LAN1 & LAN2 support LAN Bypass
	Magnetic Isolation Protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection
Storage	Type	-	m-SATA mini	Onboard eMMC 64GB
	Installation	-	m-SATA mini connector	mSATA connector
	Type	SATA II	SATA II	SATA II
	Installation	1 x 2.5" Drive Bay	1x 2.5" Drive Bay	1x SATA for 2.5" HDD/SSD (design reserved)
I/O	Serial Port	2 x Isolation RS-232/RS422/RS485 + 1 x RS-232 pin header	4/6/8 x isolated RS-232/422/485 COM(SKU A/B/C), 4x Isolated RS-485 (SKU D), 8xIsolated RS-485 + 2x RS-232/485(SKU E)	1x DB9 Console
	ESD Protection	15KV ESD protection	15KV ESD protection	15KV ESD protection
	Isolation Protection	2KV Digital Isolation	• Hi-Pot test, 1 KV • Surge, 2KV • Impulse, 2KV	2KV Digital Isolation
	Digital I/O	1x 2x5 Pin terminal block for 4x DI/DO (without isolation)	N/A	1x 2x5-pin Terminal block for isolated 2 x RS232/422/485 (COM1, COM2),4x DI with -30~5V
	USB 2.0	1x Type A, 1 x internal pin header	1 or 3 x Type A	N/A
	USB 3.0	1x Type A	1x Type A	2x USB 3.0 type A,
	Power On/Off/Reset Button	- / 1x Reset	- / 1x Internal Reset button	- / 1x Internal Reset button
	LED	Power on/off, Storage, RX/TX	Power on/off,RUN,HDD,L1~2, RX/TX 1~4	Power on/off Status and Storage access Status, DI/DO status, SFP status, LTE signal LEDs
Expansion Interface	Mini-PCIe/M.2	-	1x M.2 3042 with 1 SIM card for 4G LTE module	1x M.2 3042 B key socket with dual-SIM card reader for LTE module; 1x M.2 2230 E key socket for WiFi 5/6
Watchdog Timer		Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Supply Voltage	12-36 Vdc	12 ~ 36 Vdc, Hi-Pot test with adapter,1KV pass	+9~ +36V (Typical 12V and 24V) input
	Connector	2-pin connector Terminal Block	2-pin connector Terminal Block	2-pin connector Terminal Block
	Power Consumption (Idle)	LEC-3030A: 6.16W, LEC-3030T: 6.36W	12V: 7.5W, 36V: 9.2W	TBD
	Power Consumption (Full Load)	LEC-3030A: 8.79W, LEC-3030T: 8.65W	12V: 10.1W, 36V: 11.2W	TBD
Environment	Operating Temperature	LEC-3030A: -20~55°C (-4-131°F) LEC-3030T:-40~70°C (-40-158°F)	-40°C~70°C (-40-158°F)	-40~70°C with LTE; -40~75°C without LTE
	Storage Temperature	-40~85°C (-40-185°F)	-40~80°C (-40-185°F)	-40~70°C
	Relative Humidity	5% - 95% non-condensing	5%~95%, Non-condensing	10~90%, Non-condensing
Mechanical	Dimension (W x H x D)	LEC-3030A: 52 x 130 x 127mm LEC-3030T 57.5 x 130 x 127mm	69 x169.5 x 127 mm	160 x 156.5 x 81 mm
	Construction	LEC-3030A: Steel, LEC-3030T: Aluminum + Steel	Aluminum + SGCC	Aluminum + SGCC
	Weight	1 Kg	1.8 Kg	1.8 Kg
	Mounting	DIN rail, Wallmount	DIN rail, Wallmount	DIN rail, Wallmount
Driver Support	Microsoft Windows	Windows 7 Embedded	Windows 7 Embedded	Windows 10 IoT
	Linux	Kernel 3.X	Kernel 3.X	Dabian 11 pre-install
Certification	EMC	CE,FCC Class A	CE,FCC Class A	EN55032, EN55024 , EN55035, FCC Class A
Compliance		RoHS	RoHS	RoHS
Ordering Information		LEC-3030A/T	LEC-3034A/B/C/D/E	IIoT-I330 A/B/M/N/O/P

Industrial Edge Computer

	Intel Bay Trail	Intel Bay Trail	Intel Coffee Lake S

|	Model Name	LEC-2430	LVC-2001	LEC-2290
Processor System	CPU	Intel® Celeron® J1900/N2930 or Intel® Atom™ E3845	Intel Atom E3845 / E3825	Support Intel® CoreTM i7-8700T/i7-8700 Core i (FCLGA1152)
	Frequency	2 GHz/1.83GHz/1.91GHz	1.91 GHz / 1.33GHz	3.2GHz
	Core Number	4C	4C / 2C	4C
	Chipset	SoC	SoC	-
Fanless		Yes	Yes	Yes*
Memory	Technology	DDR3L 1333 MHz	DDR3L 1333/1600 MHz	DDR4 2133/2400 SO-DIMM
	Max. Capacity	8GB	8 GB	32 GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	2x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® UHD Graphics 630
	VGA	1x VGA, 1600 x 1200	1x VGA, 1920 x 1080 @60Hz	-
	DVI-D	-	-	-
	HDMI	1x HDMI, 1920 x1080	1x HDMI, 3840 x 2160 @24Hz or 2560 x 1600 @60Hz	2 x HDMI
Audio	Codec	Realtek ALC886	Realtek ALC886 HD codec	TSI 92HD73C
	Interface	2x Phone Jack for MIC-in and Line-out	Mic-in x1 and line-out x1 3.5mm phone jack	1x Mic-in, 1x Line-out
Ethernet	Controller	Intel® i210	Intel i210IT x 2	Intel i210IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	2x RJ45	2x RJ45	2x GbE RJ45, 4x PoE RJ45 @IEEE 802.3at (Total PoE Budget of 60W)
Storage	Type	SATA II	SATA III	-
	Installation	1x mSATA Socket	1x mSATA Socket	-
	Type	SATA II	SATA III	SATA III
	Installation	1x 2.5" HDD/SSD Drive Bay	Internal 2.5" 15 mm drive bay x 1	2x Removable HDD/SSD Caddy w/ RAID
I/O	Serial Port	2x RS-232/422/485, DB9 Male	COM1/COM2: RS-232/422/485 with RI/5V/12V Optional CAN Bus, built-in GPS and G-sensor	6x D-Sub RS232/422/485
	Digital I/O	-	4x DI/5V and 4x DO with 12V 2x DI (from MCU) 3.3V level 2x 12V with 2A dry relay	8x DI, 8x DO (12V@100mA)
	USB 2.0	4x Type A	USB 2.0 Type A x 1	-
	USB 3.0	1x Type A	USB 3.0 Type A x 1	4x Type A
	Power-On/Reset Button	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
	Remote	-	-	1x 2-pin Remote Power Switch
	LED	HDD/3G	Power/HDD	Power/HDD/LTE/Wifi
	Antenna Hole	1x SMA Antenna Hole	SMA antenna hole x4 (includes GPS+GLONASS x1)	2x SMA Antenna Holes
Expansion Interface	Mini-PCIe	1x Full-sized Socket with SIM Card Reader	2x full-size mini-PCIe socket (1x USB+ PCIe+2x SIM; 1x USB+2 x SIM) 1x half-size mini-PCIe socket (USB+PCIe) ; 4x SIM card readers	1x Mini-PCIe (PCIe + USB2.0) w/ Nano-SIM, 1x B Key M.2 (PCIe + USB3.0) w/ Nano-SIM
	PCI	1(default)	-	-
	PCI Express	1 x PCI Express x1 (In The Packing)	-	1x PCIe Epress *16
Watchdog Timer		Watchdog Timer 1~256 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	9 VDC~30 VDC	+9~36VDC	9 VDC~30 VDC
	Connector	2-pin Terminal Lock	3-pin terminal block (+,-,ignition)	1x 4-pin Terminal Block
	Power Consumption (Idle)	11.4W	TBD	29.5W
	Power Consumption (Full Load)	17.5W	TBD	121.6W
	Power Adaptor	AC to DC, AC 90 to 240 VAC Input, DC 19VDC /3.95A 75W	3-pin terminal block (+,-,ignition), +9~36VDC, ATX mode support ignition delay on/ off control	1x 4-pin Terminal Block, 9~30 VDC
Environment	Operating Temperature	0°C~55°C (with Industrial-grade Components)	-20~60°C / -4~140°F	-20°C~55°C (35W CPU) / -20°C~45°C (65W CPU)
	Storage Temperature	-20°C~70°C	-5~45°C / 23~113°F	-40°C~70°C
	Relative Humidity	5%~95%, Non-condensing	5%~95% @ 40°C / 104°F (Storage Level)	10%~90%, Non-condensing
	Vibration	IEC 60068-2-64, 0.5Grms, Random 5~500Hz, 40 Mins/Axis	MIL-STD-810G, Method 514.6	IEC 60068-2-64, 0.5Grms, Random 5 ~500Hz, 40 Mins/Axis
Mechanical	Dimension (W x H x D)	268 x 65.5 x 195 mm	198 x 52 x 185 mm (7.8"x 2"x 7.28")	275 x 115 x 225 mm
	Construction	Aluminum + SGCC	Aluminum + SGCC	Aluminum Extrusion + SGCC
	Weight	2.7 kg	3 kg	6.2 kg
	Mounting	Rack, VESA, Wallmount	Wallmount	Wallmount
Driver Support	Microsoft Windows	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	Windows: FES WES7 (WS7E) / W7 Pro SP1 / WE8 STD	Windows 10 IoT 64bits Series, Ubuntu 16 and Above, Fedora 25 and Above, Cent OS 7 and Above,
	Linux	Kernel 3.12	Redhat Enterprise 5, Fedora 14, Linux Kernel 2.6.18 or later	Kernel 3.12
Certification	EMC	CE,FCC Class A	CE/FCC Class A, E13	CE/FCC, Class A
Ordering Information		LEC-2430-J11A/LEC-2430-N21A/LEC-2430-E51A	LVC-2001-A1, LVC-2001-A2	LEC-2290

Video Analytics Platforms

Machine Vision

LEC-2290

- Intel® Core™ i7-8700T/i7-8700
- 2x DDR4 2133/2400 SO-DIMM, Max. 32GB
- 2x RJ45 GbE LAN, 4x PoE,
- 4x USB3.0, 6x COM, 8x DI & 8x DO
- 2x Removable HDD/SSD External Slot
- 1x PCIe Express, 1x Mini-PCIe , 1x M.2

LEC-2580

- Intel® Core™ i7-6600U/i5-6300U/i3-6100U
- 2x RJ45 & 4x PoE
- 4x USB 3.0, 2x USB 2.0, 2x HDMI
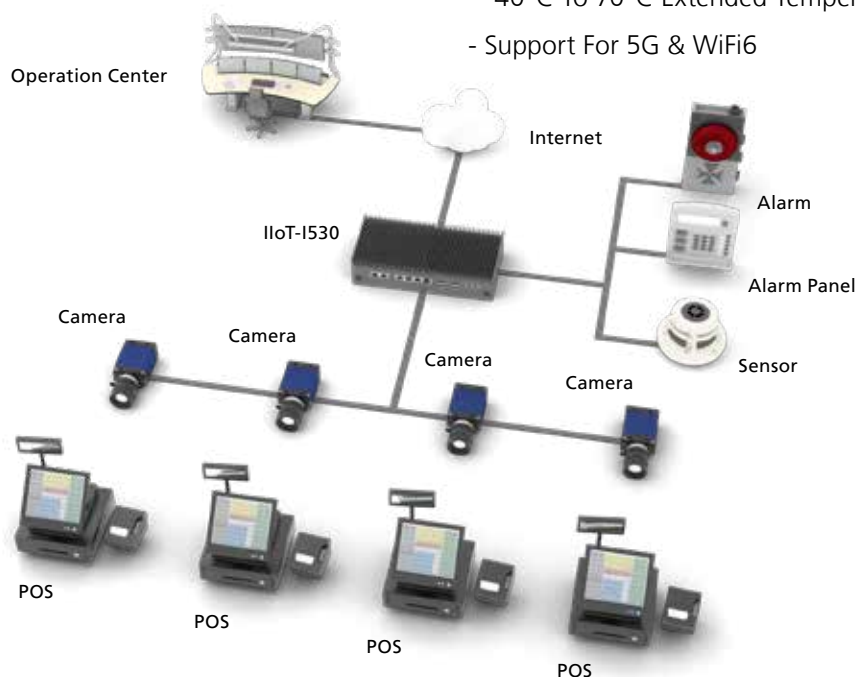- 2x 2.5" HDD/SSD, 4x COM
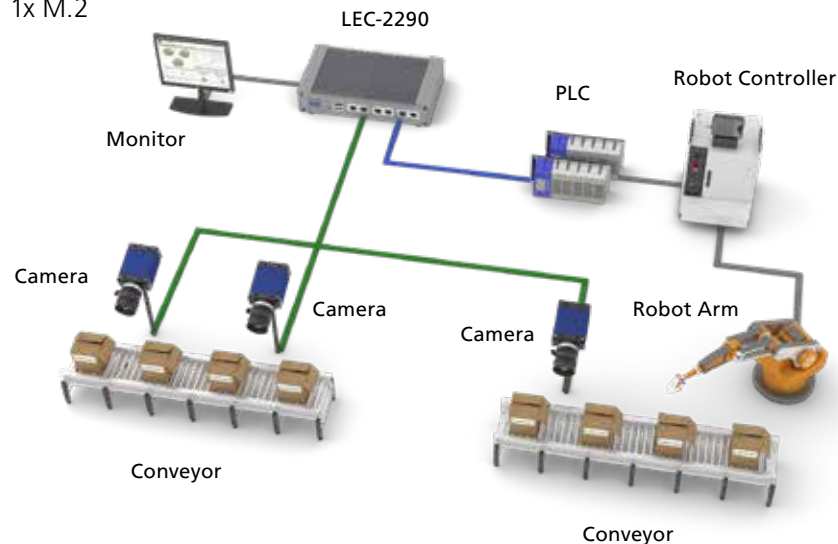
Retail Video Analytics

IIoT-I530

- 11th Gen Intel® Core i CPU
- 2x DDR4 SO-DIMM, Max. 64GB
- 6x PoE+, 2x LAN, 2x COM, 4x USB 3.0
- 2x HDMI, 8x DI & 4x DO
- Support For 5G & WiFi6

EAI-I130

- NVIDIA® Jetson Xavier NX Up To 21 TOPS
- 2x PoE+ LAN Ports
- 2x COM, 2x USB, 1x CAN Bus
- 1x HDMI, 4x DI/DO
- P40 Standard Fanless Design
- -40°C To 70°C Extended Temperature
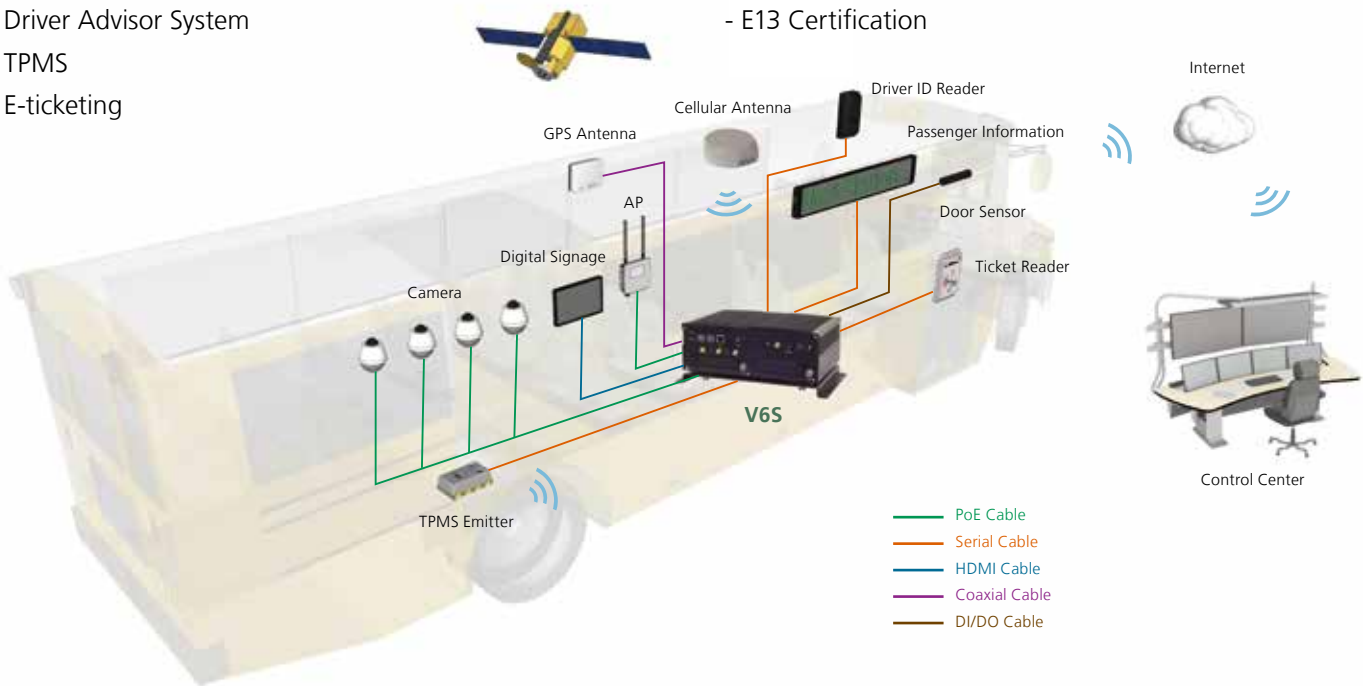- Support For 5G & WiFi6

Vehicle Video Analytics

Target Applications

- Passenger Information
- Wi-Fi Hot Spot & LTE Connectivity
- Job Dispatch & GPS Tracking
- Emergency Alarm System
- Driver Advisor System
- TPMS
- E-ticketing

V6S

- Intel® Core i7-7600U CPU
- 10 x PoE, 1x Mini-PCIe with 2 SIM sockets for 4G/LTE
- 1x Removable 2.5" Drive Bay
- Suspension Kit
- E13 Certification

GPS Antenna
Cellular Antenna
Driver ID Reader
Passenger Information
Internet
AP
Door Sensor
Digital Signage
Ticket Reader
Camera
V6S
TPMS Emitter
Control Center

PoE Cable
Serial Cable
HDMI Cable
Coaxial Cable
DI/DO Cable

Railway Video Analytics

Target Applications

- Onboard Video Surveillance
- Audio Intercom
- GPS Location-Based Service
- Emergency Alarm System
- Passenger Information System
- Wi-Fi Hot Spot

R6S

- Intel® Core i7-7600U Processor
- EN50155 and EN45545 Certified
- 10x PoE, CAN Bus,4x USB, 2 x COM, VGA, DVI-D
- 3x Mini-PCIe with SIM Card Readers
- Wide Operating Temperature -40 to 70°C
- Onboard GPS and G-sensor, 1x Removable 2.5" Drive Bay

IP Camera
Wireless AP
HMI
Intercom
Passenger Information

PoE Cable
Serial Cable
HDMI Cable
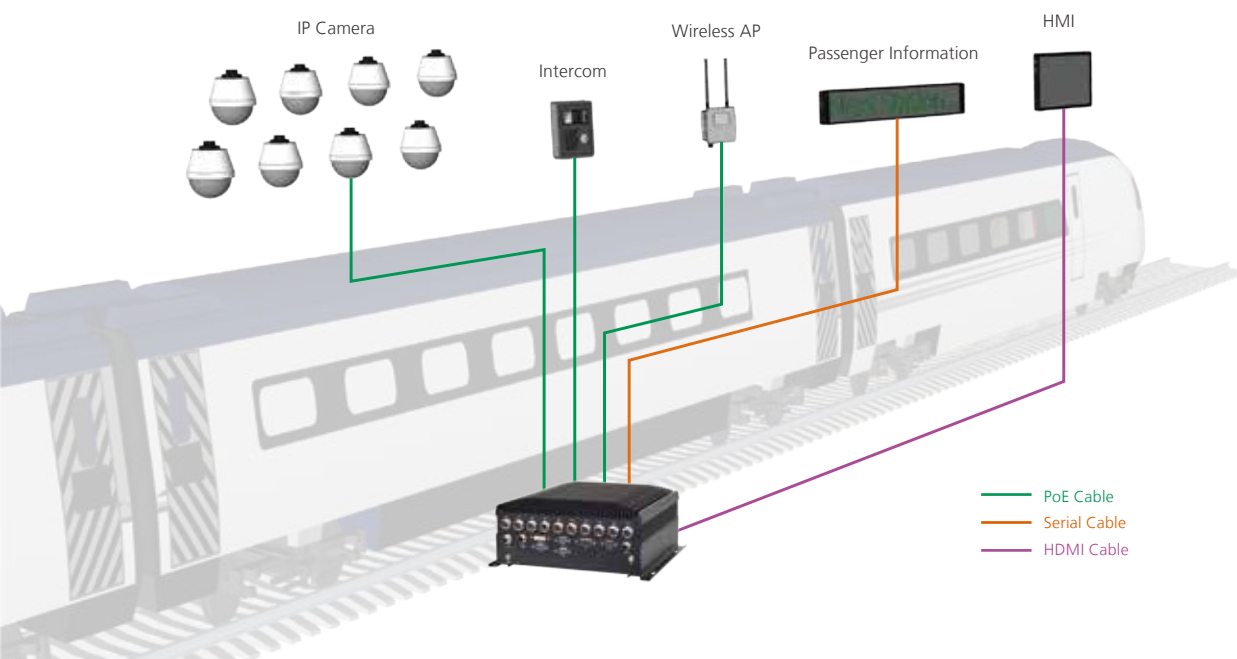
Video Analytics Platforms

	NVIDIA Jetson	Intel Coffee Lake S	Intel Coffee Lake S

Model Name		EAI-I130 NEW	LEC-2290 B/C/D	LEC-2290 E/H NEW
Processor System	CPU	Xavier NX: 6-core NVIDIA Carmel ARM®v8.2 64-bit CPU 2MB L2 + 4MB L3 Nano: Quad Core ARM Cortex A57	Support Intel® Core™ i7-8700 Core i (FCLGA1152)	Support Intel® CoreTM i7-8700T/i7-8700 Core i (FCLGA1152)
	Frequency	1.43GHz	3.2GHz	3.2GHz
	Core Number	-	4C	4C
	Chipset	-	-	-
Fanless		Yes	Yes*	Yes*
Memory	Technology	LPDDR4 / 1600 MHz / 51.2 GB/s	DDR4 2133/2400 SO-DIMM	DDR4 2133/2400 SO-DIMM
	Max. Capacity	4/8/16GB (By SKU)	16 GB	32 GB
	Socket	-	2x 204-pin SODIMM	2x 204-pin SODIMM
Graphic	Controller	-	Intel® UHD Graphics 630	Intel® UHD Graphics 630
	HDMI	1x HDMI	2 x HDMI	2 x HDMI
Audio	Codec	TLV320AIC3206IRSBT	TSI 92HD73C	TSI 92HD73C
	Interface	1x Mic-in, 1x Line-out	1x Mic-in, 1x Line-out	1x Mic-in, 1x Line-out
Ethernet	Controller	Intel i226IT	Intel i210IT	Intel i210IT
	Speed	10/100/1000/2500Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	2x RJ45	2x GbE RJ45, 4x PoE RJ45 @IEEE 802.3at (Total PoE Budget of 60W)	2x GbE RJ45, 4x PoE RJ45 @IEEE 802.3at (Total PoE Budget of 60W)
Storage	Type	M.2	SATA III	SATA III
	Installation	1x M.2 2280 M Key (PCIe x4)	128 GB mSATA storage (SKU C/D)	128 GB mSATA storage
	Type	eMMC 5.1	SATA III	SATA III
	Installation	16 GB for OS Storage	2.5" 256GB SATA storage (SKU B/C/D)	2.5" 256GB SATA storage
I/O	Serial Port	2x RS232/422/485 (COM1 & COM2)	6x D-Sub RS232/422/485	6x D-Sub RS232/422/485
	Digital I/O	4x DI (Support PNP/ NPN / Dry Contact) & 4x DO (Support Dry / Sink), IEC 61121-2, 24V With Maximum 200mA	8x DI, 8x DO (12V@100mA)	8x DI, 8x DO (12V@100mA)
	USB 2.0	2x Type A	-	-
	USB 3.0	-	4x Type A	4x Type A
	Power-On/Reset Button	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
	Remote	-	1x 2-pin Remote Power Switch	1x 2-pin Remote Power Switch
	LED	Yes	Power/HDD/LTE/Wifi	Power/HDD/LTE/Wifi
	Antenna Hole	6x SMA Antenna Holes	2x SMA Antenna Holes	2x SMA Antenna Holes
Expansion Interface	Mini-PCIe		1x Mini-PCIe (PCIe + USB2.0) w/ Nano-SIM,	1x Mini-PCIe (PCIe + USB2.0) w/ Nano-SIM,
	M.2	1x M.2 304(5)2 B Key Socket (USB 3.0) For 5G Sub-6 With Dual SIM Socket Reserved 1x M.2 2230 E Key Socket (USB2.0 & PCIe) For WiFi	1x B Key M.2 (PCIe + USB3.0) w/ Nano-SIM	1x B Key M.2 (PCIe + USB3.0) w/ Nano-SIM
	PCI Express	-	1x PCIe Epress *16	1x PCIe Epress *16
Watchdog Timer		TBD	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	+24VDC	9 VDC~30 VDC	9 VDC~30 VDC
	Connector	1x 3-pin Terminal Block	1x 4-pin Terminal Block	1x 4-pin Terminal Block
	Power Consumption (Idle)	TBD	29.5W	29.5W
	Power Consumption (Full Load)	TBD	121.6W	121.6W
	Power Adaptor	AC to DC, AC 100 to 240 VAC Input, DC 12VDC /12.5A 150W	1x 4-pin Terminal Block, 9~30 VDC	1x 4-pin Terminal Block, 9~30 VDC
Environment	Operating Temperature	-40°C~70°C w/ LTE, -40°C~75°C w/o LTE	-20°C~55°C (35W CPU) / -20°C~45°C (65W CPU)	-20°C~55°C (35W CPU) / -20°C~45°C (65W CPU)
	Storage Temperature	TBD	-40°C~70°C	-40°C~70°C
	Relative Humidity	TBD	10%~90%, Non-condensing	10%~90%, Non-condensing
	Vibration	-	IEC 60068-2-64, 0.5Grms, Random 5 ~500Hz, 40 Mins/Axis	IEC 60068-2-64, 0.5Grms, Random 5 ~500Hz, 40 Mins/Axis
Mechanical	Dimension (W x H x D)	201 x 65 x 196 mm	275 x 115 x 225 mm	275 x 115 x 225 mm
	Construction	-	Aluminum Extrusion + SGCC	Aluminum Extrusion + SGCC
	Weight	2.6 Kg	6.2 kg	6.2 kg
	Mounting	VESA (Optional), Wallmount	Wallmount	Wallmount
Driver Support	Microsoft Windows	-	Windows 10 IoT 64bits Series, Ubuntu 16 and Above, Fedora 25 and Above, Cent OS 7 and Above	Windows 10 IoT 64bits Series, Ubuntu 16 and Above, Fedora 25 and Above, Cent OS 7 and Above,
	Linux	Linux Open Source On NVIDIA SDK	Kernel 3.12	Kernel 3.12
Certification	EMC	CE,FCC Class A	CE/FCC, Class A	CE/FCC, Class A
Ordering Information		EAI-I130A/EAI-I130B	C: 1x Intel® Movidius™ Myriad™ X mPCIe card D: 1x Intel® Movidius™ Myriad™ X M.2 card	E: Nvidia Tesla A2 GPU & Thermal Kit H: Falcon H8 AI Acceleration Card

Video Analytics Platforms

Intel Apollo Lake
Intel Skylake
Intel Tiger Lake

NEW

	Model Name	LEC-2137	LEC-2580	IIoT-I530
Processor System	CPU	Intel® Atom™ x7-E3950 or Celeron® N3350	Intel® Core™ i7-6600U/i5-6300U/i3-6100U	11th Gen Intel® Core™ i (Up to i7-1185GRE)
	Frequency	2 GHz/1.8 GHz	2.6 GHz/2.4 GHz/2.3 GHz	PBF1.80GHz, MaxTurbo to 4.4GHz
	Core Number	4C	2C	4C
	Chipset	SOC	SOC	N/A
Fanless		Yes	Yes	Yes
Memory	Technology	DDR3L 1333/1600/1867 MHz	DDR3L 1333/1600 MHz	DDR4 3200 SO-DIMM
	Max. Capacity	8GB	16GB	64GB
	Socket	1x 204-pin SODIMM	2x 204-pin SODIMM	2x 260-pin SO-DIMM
Graphic	Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® Iris® Xe Graphics
	VGA	1x VGA, 1600 x 1200	-	-
	DVI-D	-	-	-
	HDMI	1x HDMI, 3840 x 2160@30Hz	2x HDMI, 3840 x 2160@24Hz or 2560 x 1600@60Hz	2x HDMI
Audio	Codec	-	Realtek ALC886	TSI 92HD73C
	Interface	-	2x Phone Jack for MIC-in and Line-out	1x Mic-in, 1x Line-out
Ethernet	Controller	Intel® i210	Intel® i219 and i211	Intel i225IT & i210IT
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	2.5Gbps/1Gbps/100Mbps/10Gbps
	Interface	6x RJ45 (Including 4 PoE Option)	6x RJ45 (Including 4 PoE Option)	2x 2.5Gbps RJ45, 6x GbE RJ45 For PoE+ (Total PoE Budget of 120W)
Storage	Type	SATA III	SATA III	1x mSATA+1x SATA+1x M.2 M-Key 2280
	Installation	1x mSATA Socket	1x mSATA Socket	1x mSATA+1x 2.5" SATA Drive Bay for SSD/HDD, 1x M.2 M-Key 2280 PCIe Gen4 x4 NVMe SSD
	Type	SATA III	SATA III	-
	Installation	1x 2.5" HDD/SSD Drive Bay	2x 2.5" HDD/SSD Drive Bay (Raid 0/1)	-
I/O	Serial Port	1x RS-232/422/485, DB9 Male	4x RS-232/422/485, DB9 Male	2x RS232/422/485
	Digital I/O	-	-	8x Isolated DI, 4x Isolated DO
	USB 2.0	2x Type A	2x Type A	-
	USB 3.0	2x Type A	4x Type A	4x Type A
	Power-On/Reset Button	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
	Remote	-	Yes	Yes
	LED	Power/HDD/3G	Power/HDD/3G/Wifi	Power/HDD
	Antenna Hole	2x SMA Antenna Hole	2x SMA Antenna Holes	6x SMA Antenna Holes
Expansion Interface	Mini-PCIe	1x Full-sized Socket with SIM Card Reader (USB 2.0 Signal)	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket
	M.2	-	-	1x B-Key 3042/3052 w/ 2x Nano-SIM (eSIM Reserved) For 5G 1x E-Key 2230 For WiFi-6 1x M-Key 2280 For PCIe Gen4 x4 NVMe SSD
	PCI Express	-	-	-
Watchdog Timer		Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Type	ATX	ATX	ATX
	Power Supply Voltage	24 VDC	12 VDC~30 VDC	24 VDC
	Connector	2-pin Terminal Block	2-pin Terminal Block	1x 3-pin Terminal Block
	Power Consumption (Idle)	10.266W	13W	TBD
	Power Consumption (Full Load)	21.424W or 54.405W (With All 4x PoE Ports Supplying Power)	38W	TBD
	Power Adaptor	60W 24V/2.5A FSP Adapter 120W 24V/5A FSP Adapter	Optional AC to DC, AC 90V to 240V Input, DC 24V/2.5A 60W Adapte	TBD
Environment	Operating Temperature	LEC-2137C/LEC-2137E: -20°C~55°C LEC-2137D/LEC-2137F: 0°C~50°C	0°C~60°C (with Industrial-grade Components)	-40°C~55°C (CPU Not Throttling, Up To 70°C For 72Hr Running)
	Storage Temperature	-20°C~70°C	-20°C~70°C	-40°C~70°C
	Relative Humidity	5%~95%, Non-condensing	5%~95%, Non-condensing	10%~90% (Non-condensing)
	Vibration	IEC 60068-2-64, 0.5Grms, Random 5~500Hz, 40 Mins/Axis	IEC 60068-2-64, 0.5Grms, Random 5~500Hz, 40 Mins/Axis	IEC 60068-2-64, 0.5Grms, random 5 ~500 Hz, 40 Mins/Axis
Mechanical	Dimension (W x H x D)	198 x 41 x 143.8 mm	210 x 60 x 143.8 mm	270 x 76 x 180 mm
	Construction	Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC
	Weight	1.6 kg	2 kg	TBD
	Mounting	Rack, VESA, Wallmount, DIN-rail	Rack, VESA, Wallmount, DIN-rail	VESA, Wallmount
Driver Support	Microsoft Windows	Win 7/Win 10 Full	Win 7/Win 10 Full	
	Linux	LInux	Linux	Depending on Intel Driver Release
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Ordering Information		LEC-2137A/LEC-2137B/LEC-2137C/LEC-2137D	LEC-2580/LEC-2580P	IIoT-I530A/IIoT-I530C

Vehicle Video Analytics

Intel Apollo Lake, 4xPoE

Intel Kaby Lake,10xPoE

Vehicle Gateway		V3S Series	V6S Series
Chassis	Dimension (W x H x D)	273.8 x 73 x 185 mm (10.78" x 2.87" x 7.28")	273.8 x 92 x 219 mm (10.78" x 3.62" x 8.62")
	IP Rated	IP30	IP50
System	Processor Number	Intel Atom x7-E3950 Processor	Intel® Core™ i7-7600U Processor
	Chipset	N/A	N/A
	Processor Graphics	Intel HD Graphics 505	Intel® integrated HD Graphics 620
System Memory	Technology	DDR3L SO-DIMM x 1	DDR4 2133 SO-DIMM Socket x2, 8GB pre-installed
	Max. Capacity	Up to 8 GB, pre-installed 4GB	Up to 32 GB, pre-installed 8GB
Storage	CF/ Onboard SSD	mSATA x 1, pre-installed 128GB	mSATA x 1, pre-installed 128GB
	HDD/SSD	Removable HDD/SSD Caddy x 1	Removable HDD/SSD Caddy x2
Ethernet Controller		Intel i210IT x3	Intel i210IT x4
Audio Controller		Realtek ALC886 HD codec	Realtek ALC886 HD codec
I/O	LAN	GbE RJ45 x2	GbE RJ45 x1
	PoE	IEEE 802.3af PoE ports RJ45 x4	IEEE 802.3af PoE ports RJ45 x10
	Display	DVI-D x 2, resolution up to 1920x1200	VGA x 1, resolution up to 2048x1536 DVI-D x 1, resolution up to 1920x1200
	Audio	Internal Mic-in and line-out pin-header	Line-in and Line-out by HD Audio
	Serial I/O	2x RS-232/422/485	2x RS232/422/485 with RI/5V
	GPS	u-blox NEO-M8N; 3 GNSS (GPS, Galileo, GLONASS, BeiDou), default @ GPS + GLONASS dual band	u-blox NEO-M8N; 3 GNSS (GPS, Galileo, GLONASS, BeiDou), default @ GPS + GLONASS dual band
	G-sensor	ADXL 345	ADXL 345
	CAN	Optional CAN Bus J1939 / J1708 x1	Optional CAN Bus J1939 / J1708 x1
	Digital I/O	8x DI 5V Level TTL and 8x DO 12V Level TTL 2x DI (from MCU) 3.3V Level TTL 1x 12V with 1A dry relay	6x DI 5V or 12V TTL selectable 6x DO 12V TTL, Max. 100mA 2x IGN-DI of ignition control to MCU
	USB	USB 2.0 Type A x2 with 500 mA	USB 2.0 Type A x2; USB 3.0 Type A x2
	Expansion	1x Full Size Mini-PCIe with dual SIM card reader, 1x Half Size Mini-PCIe, 1x removable M.2 3042 with dual SIM card readers	1 x full-sized Mini-PCIe with dual SIM card reader for LTE/ WiFi, and 1x removable M.2 3042 with dual SIM card readers
	Antenna	7x SMA antenna hole (includes GPS+GLONASS x1)	7x SMA antenna holes (includes GPS+GLONASS x1)
	Power Input	3-pin terminal block (+, -, ignition), support +12V and +24V vehicle power (+9~36VDC), ATX mode support ignition on/off and delay Power-on/off	3-pin terminal block (+, -, ignition), support +12V and +24V vehicle power (+9~36VDC), ATX mode support ignition on/off and delay Power-on/off
	Power Output	N/A	12V/1A DC out
Hardware Monitoring		Fintek F81866AD-I integrated watchdog timer 1~255 level	Fintek F81866AD-I integrated watchdog timer 1~255 level
OS Support		Windows: Win10 IoT Linux: Redhat Enterprise 5, Fedora 14, Linux Kernel 2.6.18 or later	Windows: Win10 IoT Linux: Redhat Enterprise 5, Fedora 14, Linux Kernel 2.6.18 or later
Certifications	EMC	CE, FCC Class A, RoHS	CE, FCC Class A, RoHS
	Safety	E13 include ISO 7637-2, SAE J1455& J1113-11	E13 include ISO 7637-2
	Vibration	MIL-STD-810G, Method 514.6	MIL-STD-810G, Method 514.6
	Shock	MIL-STD-810G, Method 516.6	MIL-STD-810G, Method 516.6
Environmental	Operating Temperature	-40~70°C / -40~158°F	-20~60°C / -4~140°F
	Storage Temperature	-40~85°C / -40~185°F	-20~85°C / -4~185°F
	Humidity	5%~95% @ 40°C / 104°F (Storage Level)	5%~95% @ 40°C / 104°F (Storage Level)
Net Weight (Kg)		4	5.5

Railway Video Analytics
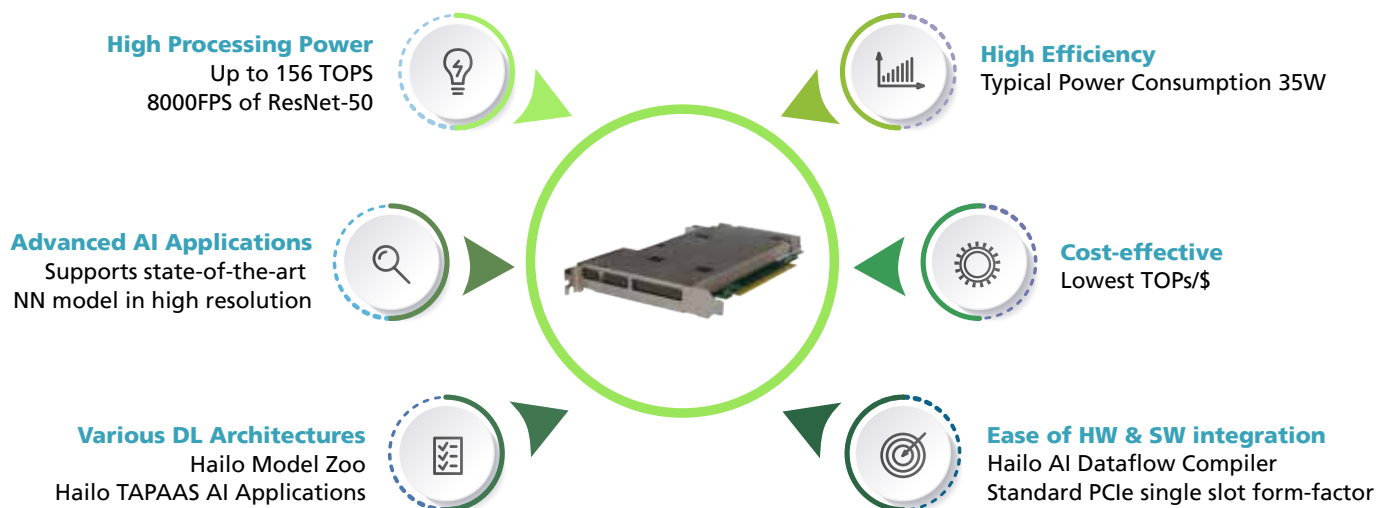
Intel Apollo Lake, 6xPoE

Intel Kaby Lake, 10xPoE

Railway Solution		R3S	R6S
Chassis	Dimensions (W x H x D)	272.4 x 114.3 x 228 mm (10.72" x 4.5" x 8.97")	272.4 x 121.3 x 228 mm (10.72" x 4.77" x 8.97")
	IP Rated	IP50	IP50
System	Processor Number	Intel Atom x7-E3950 Processor	Intel Core i7-7600U 2.8GHz Processor
	Chipset	N/A	N/A
	Processor Graphics	Intel integrated HD Graphics 505	Intel integrated HD Graphics 620
Memory	Technology	LPDDR4 1600 MHz Memory, 8GB pre-installed	DDR4 1866/2133 SODIMM Socket x 1
	Max. Capacity	Up to 8 GB (Factory default: 4GB pre-installed)	Up to 16 GB (Factory default: 16 GB module pre-installed)
Storage	CF/ SD / mSATA Socket	mSATA socket x 1, 128GB pre-installed	mSATA socket x 1, 128GB pre-installed
	2.5" Drive Bay	Internal 2.5" drive bay x 1	Removable 2.5" Caddy x 1
Ethernet Controller		Intel i210-IT x 6	Intel i210-IT x 4
Audio Controller		Realtek ALC886 HD codec	Realtek ALC886 HD codec
I/O	Display	HDMI x 2, resolution up to 3840x2160	VGA x 1, resolution up to 2048 x 1536 DVI-D x 1, resolution up to 1920 x 1200
	LAN	GbE RJ45 x1	GbE RJ45 x1
	PoE	IEEE 802.3at PoE ports M12 A-coded x 6	IEEE 802.3af standard PoE ports x 10
	Audio	Mic-in and Line-out with 2-watt by HD Audio	Mic-in and Line-out with 2-watt by HD Audio
	Serial I/O	COM1: RS232/422/485 COM2: RS232/422/485 COM3: RS232/CAN	RS-232/422/485 x2 with RI/5V/12V
	GPS	u-blox NEO-M8N; 3 GNSS (GPS, Galileo, GLONASS, BeiDou), default @ GPS + GLONASS dual band	u-blox NEO-M8N; 3 GNSS (GPS, Galileo, GLONASS, BeiDou), default @ GPS + GLONASS dual band
	G-sensor	ADXL 345	ADXL 345
	CAN	Optional CAN Bus J1939 / J1708 x1	Optional CAN Bus J1939 / J1708 x1
	Digital I/O	11x DI 5V Level TTL and 4x DO 12V Level TTL 1x DI (from MCU) 3.3V Level TTL 2x 12V with 1A dry relay	7x DI 12V TTL selectable 7x DO 24V TTL, Max. 100mA 2x IGN-DI of ignition control to MCU
	USB	USB 2.0 Type A x4 with 500 mA	USB 2.0 Type A x1; USB 3.0 Type A x4
	Expansion	M.2 3042 B Key x2	Full-size Mini-PCIe Socket x2 with dual SIM card readers on each
	Antenna	SMA antenna hole x6 (includes GPS+GLONASS x1)	SMA antenna hole x6 (includes GPS+GLONASS x1)
	Power Input	Supports DC 14.4~154V level, ATX mode support ignition delay on/ off control	Supports DC 14.4~154V level, ATX mode support ignition delay on/ off control
	Power Output	12V/1A DC out	12V/2A DC out
Hardware Monitoring / WDT		Fintek F81866AD-I integrated watchdog timer 1~255 level	Fintek F81866AD-1 integrated watchdog timer 1~255 level
OS Support		Windows: Win10 IOT Linux: Redhat Enterprise 5, Fedora 14. Linux Kernel 2.6.18 or later	Windows: Win10 IOT Linux: Redhat Enterprise 5, Fedora 14. Linux Kernel 2.6.18 or later
Certifications	EMC	CE, FCC Class A, RoHS, EN 50121-3-2, EN 50121-4	CE, FCC Class A, RoHS, EN 50121-3-2, EN 50121-4
	Safety	E13 include ISO 7637-2	E13 include ISO 7637-2
Compliance	Ambient Internal Temperature	EN 50155 Tx (-40 ~ 70°C), EN 50125-3	EN 50155 Tx (-40 ~ 70°C), EN 50125-3
	Shock and Vibration	EN 61373 / MIL-STD-810G	EN 61373 / MIL-STD-810G
	Interruptions of Voltage Supply	EN 50155 Class S1	EN 50155 Class S2
	Supply Over Change	EN 50155 Class C1	EN 50155 Class C2
	Fire & Smoke	EN 45545-2	EN 45545-2
Environmental	Operating Temperature	-40~70°C / -40~158°F	-40~70°C / -40~158°F
	Storage Temperature	-40~85°C / -40~185°F	-40~85°C / -40~185°F
	Humidity	5%~95% @ 40°C / 104°F (Storage Level)	5%~95% @ 40°C / 104°F (Storage Level)
Net Weight (kg)		7	5.5

Falcon H8 AI Acceleration Card

The most cost-efficient PCIe accelerator card on the market

Lanner's Falcon H8 modular, PCIe form factor provides an easily deployable solution for engineers looking to offload CPU loading for low-latency deep learning inference. With high-density AI processors, the Falcon H8 accommodates 4, 5, or 6 Hailo-8™ AI processors, offering a modular, cost-effective Edge AI solution with high processing capabilities and power efficiency. Through a standard PCIe interface, the Falcon H8 AI Accelerator Card enables legacy devices such as NVRs, Edge AI boxes, Industrial PCs and robots to run video-intensive, mission-critical Edge AI applications such as video analytics, traffic management, access control, and beyond..

High Processing Power
Up to 156 TOPS
8000FPS of ResNet-50

High Efficiency
Typical Power Consumption 35W

Advanced AI Applications
Supports state-of-the-art
NN model in high resolution

Cost-effective
Lowest TOPs/$

Various DL Architectures
Hailo Model Zoo
Hailo TAPAAS AI Applications

Ease of HW & SW integration
Hailo AI Dataflow Compiler
Standard PCIe single slot form-factor

Specifications

AI Performance
Up To 156 TOPs 8000 FPS Of ResNet-50, 1300 FPS Of YOLOv5m

AI Processors
4-6 Hailo-8™ AI Processors with Hailo Patented Structure Defined Dataflow Architecture

AI Frameworks Support
Hailo AI Dataflow Compiler With Profiler And Emulator Supports TensorFlow, ONNX And PyTorch Frameworks

PCIexpress Interface
PCI Express x16 Compliant With PCI Express Specification v3.0

System Compatibility
Intel x86 or ARM Devices, Linux OS e.g., Ubuntu, Yocto
Lanner Network and Edge AI Appliances

Power Consumption
Typical: 35W

Temperature
Operating: 0~70°C   (Commercial Grade)
              -40~85°C (Industrial Grade)
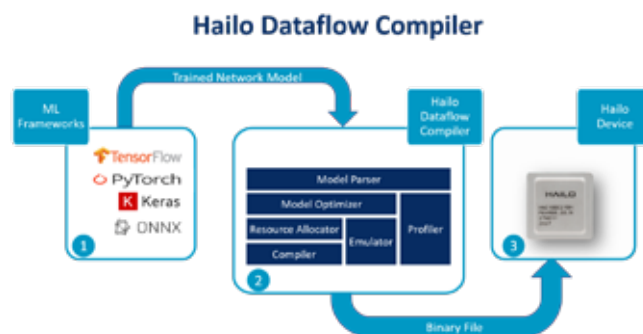Storage: -40~85°C

Humidity
5% - 90% RH, Non-condensing

Dimension
Standard PCIe Single Slot Form-factor
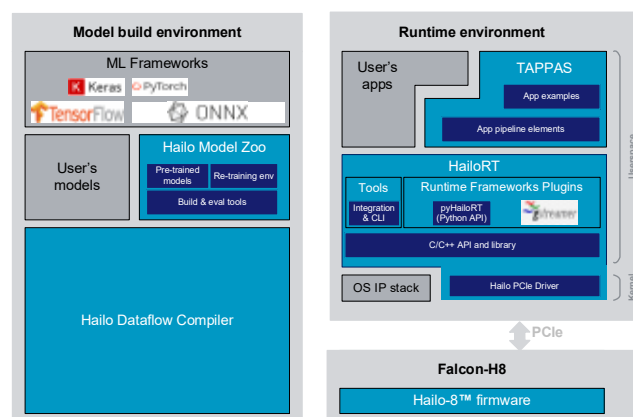167.65mm x 111.15mm Without Bracket

Certifications
CE Class A
FCC Class A

Hailo Toolchain and Developer Tools

Hailo Dataflow Compiler


Hailo Dataflow Compiler diagram

Industrial Security Appliances

Lanner offers wide-range, customizable hardware platforms designed to secure communications in critical infrastructures including energy, power, oil and gas industries.
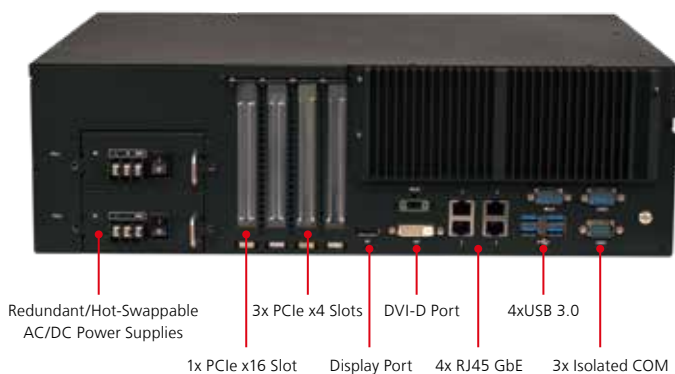
IIoT Network Security Gateway

- Antivirus/Malware
- SCADA Encryption
- Virtualization Security
- DLP / SIEM
- IDS / IPS / IAM
- DDoS Protection
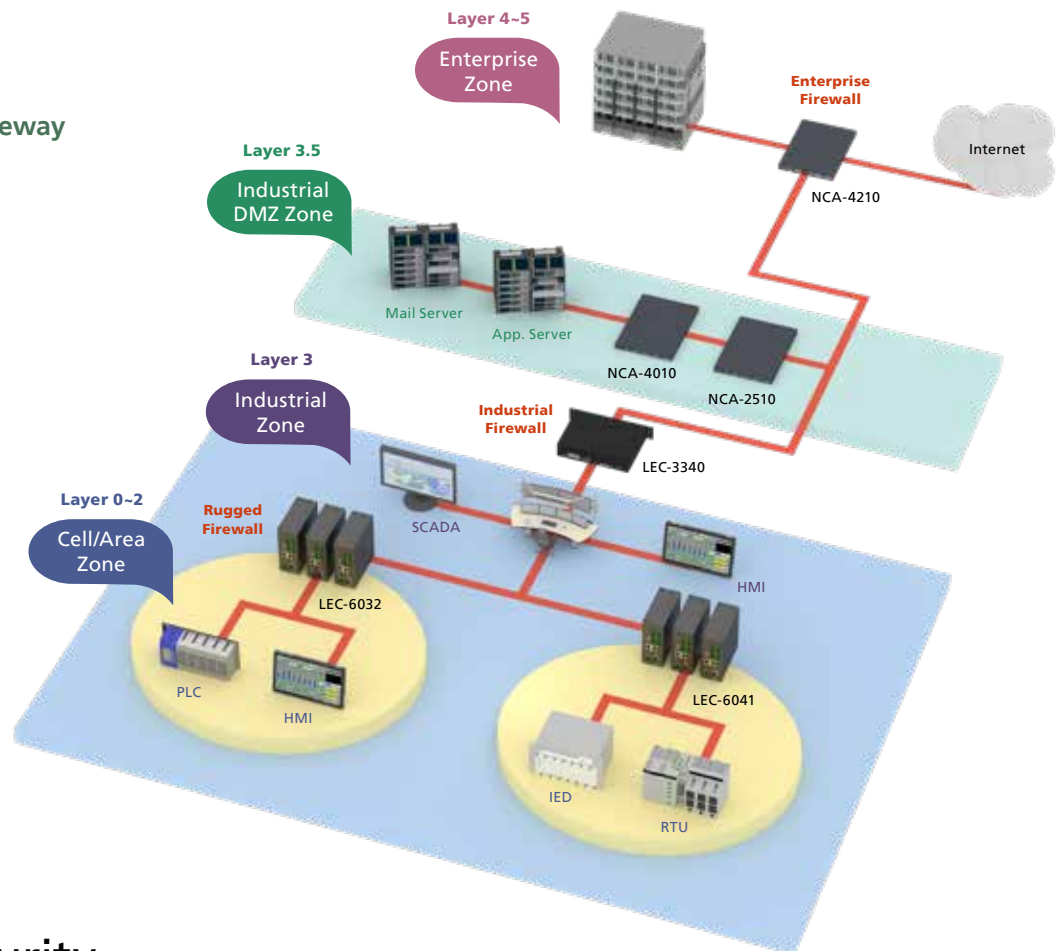
Substation Security

IEC 61850-3 Industrial Substation Gateways Enable Centralized Visibility

A centralized, substation-oriented gateway is required to control their PLC, EPC (engineering, procurement, and construction), and collect data generated by sensors deployed within the SCADA.

Redundant/Hot-Swappable AC/DC Power Supplies
3x PCIe x4 Slots
DVI-D Port
4xUSB 3.0
1x PCIe x16 Slot
Display Port
4x RJ45 GbE
3x Isolated COM

Target Applications:

- Power SCADA System
- Communication Gateway
- Automation Platform for Substation
- IED Communication Gateway

LEK-Ix401 Industrial GbE PCIe Cards

Industrial Security Appliance

Intel Bay Trail | Intel Apollo Lake, IEC-61850 | Intel Kaby Lake, IEC-61850

	Model Name	LEC-6032	LEC-6041	LEC-3340
Processor System	CPU	Intel® Atom™ E3845	Intel® Atom™ x7-E3950 or x5-E3930	Intel® Xeon® E3-1505L V6, Core i5-7442EQ CPU
	Frequency	1.91 Ghz	Atom x5-E3930: 1.3 GHz, Atom x7-E3950: 1.6 GHz	2.2 GHz or 2.9 GHz
	Core Number	4C	Atom x5-E3930: 2, Atom x7-E3950: 4	Intel Xeon E3-1505L V6 / Core i5-7442EQ: Quad core
	BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
	Chipset	SoC	SoC	Intel® CM238
Fanless		Yes	Yes	Yes
Memory	Technology	DDR3L 1333 MHz	DDR3L 1866 MHz	DDR4 ECC 2400 MHz
	Max. Capacity	8GB	8GB	Up to 32 GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	2 x 260-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel HD 505 Graphics	Intel® Xeon® E3-1505L V6: HD Graphics P530 Intel® Core i5-7442EQ CPU: HD Graphics P630
	VGA	Internal pin header	1 x HDMI	DP, DVI-D
Ethernet	Controller	Intel® i210	Intel® i210	Intel® i210
	Speed	10/100/1000Mbps	RJ45: 10/100/1000Mbps, SFP: 1 Gbps	Either 1000 Mbps or 10/100 Mbps
	Interface	6032B: 5 x GbE RJ-45, 2 pairs Bypass 6032C: 5 x GbE RJ-45, 1 pair Bypass, 2 x SFP GbE ports 6032D: 5 x GbE RJ-45, 1 pair Bypass 6032F: 3 x GbE RJ-45, 1 pair Bypass, 4 x SFP GbE ports	5 x GbE RJ45, 1 pair LAN Bypass 2 x GbE SFP ports	4 x 1000Base-T GbE RJ45 ports
	Magnetic Isolation Protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection
Storage	Type	-	m-SATA	m-SATA
	Installation	-	1 x mini mSATA socket	1 x mSATA socket
	Type	SATA II	SATA II	SATA II
	Installation	1x 2.5" Drive Bay	1x 2.5" Drive Bay (Optional)	2 x 2.5" Swappable HDD/SSD drive bay support RAID0,1
I/O	Serial Port	1x DB9 for RS-232 (6032D only), Internal pin-header x 1	2x RS-232, DB9 male	2 x DB9 Male (COM1/COM2) with isolation supports software selectable RS-232/422/485
	ESD Protection	15KV ESD Protection	15KV ESD protection	15KV ESD Protection
	Isolation Protection	2KV Digital Isolation	2KV Digital Isolation	2KV Digital Isolation
	Digital I/O	-	-	-
	USB 2.0	1x Type A	2x Type A	-
	USB 3.0	1x Type A	-	5 x type A
	Power On/Off/Reset Button	- / 1x Reset	- / 1x Reset	- / 1x Reset
	LED	Power on, Storage, RUN, LAN LEC-6032 C/F: SFP	Power on, Storage, Run(User defined), 5 x LAN, 2 x SFP	2x Power on for LED (Power1/Power2) in Green 1x Storage access LED for mSATA/HDD1/HDD2 in Green 4x double stack LED for Ethernet active in Yellow; Speed LED 100M in Green; Speed LED 1G: Yellow 2x Double Stack LED for COM1/COM2 TX in Yellow; RX Signal Access in Green 1x Failure LED(User Programmable)in multi-color Red/Green
Expansion Interface	PCIe/Mini-PCIe	-	1x mini-PCIe with 1 SIM card for 4G LTE module (USB & PCIe signal)	1 x PCIe x16, 3 x PCIe x4 slots
Watchdog Timer		Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Supply Voltage	12-36Vdc	20-54 Vdc	2x 16.6Vdc or 100~240Vac
	Connector	6-pin Terminal Block	6-Pin Terminal Block	3-Pin Terminal Block
	Power Consumption (Idle)	10.62W	SKU A/20V:12.8W, SKU A/54V12.8W, SKU B/20V:13.9W, SKU B/54V: 14.4W	16.3W
	Power Consumption (Full Load)	14.63W	SKU A/20V: 14.8W, SKU A/54V:14.4W SKU B/20V:18.4W, SKU B/54V:19.3W	28.7W
Environment	Operating Temperature	-40~70°C (-40~176°F)	-40~70°C (-40~176°F)	-40°C~70°C (-40-158°F)
	Storage Temperature	-40~85°C (-40~185°F)	-40~85°C (-40~185°F)	-40~85°C (-40~185°F)
	Relative Humidity	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
Mechanical	Dimension (W x H x D)	78 x 146 x127 mm (3.07"x 5.75"x 5.00")	53.5 x 166 x160 mm (2.11"x 6.54"x 6.30")	438 x 131.8 x 300.1 mm (17.24" x 5.19" x 11.81")
	Construction	Aluminum	Aluminum + SGCC	Aluminum + Steel
	Weight	2.2 Kg	1.6 Kg	8.5 kg
	Mounting	DIN rail, Wallmount	DIN rail, Wallmount	Rackmount
Driver Support	Microsoft Windows	Windows 7 Embedded	Windows 10 PRO	Windows 10 PRO
	Linux	Kernel 3.X	Kernel 4.X	Kernel 4.X
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Compliance		RoHS	RoHS, IEC 61850-3	RoHS, IEC 61850-3
Ordering Information		LEC-6032B/C/D/F	LEC-6041A/B	LEC-3340A/B/C

Railway Cybersecurity

Railway cybersecurity is imperative and risk mitigation strategies need to be implemented to ensure secured operations and service continuity public safety. ICS-R372 Series is designed as a cost-effective embedded system, powered by Intel Apollo Lake CPU, providing quality performance with low power consumption for rolling stock cybersecurity application. ICS-R372 has passed extensive vibration and shock testing, earning compliance for EN50155 standard, making it exceptionally suitable for cybersecurity application in railway vehicles.
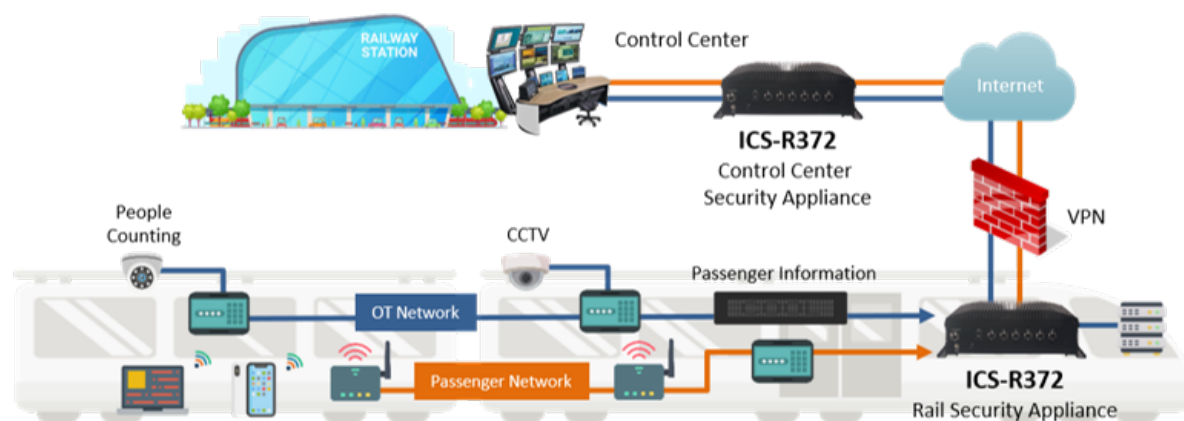
EN50155, EN50121, EN50125 and EN45545 Certified

Feature	Description	ICS-R372
Form Factor		Fanless Desktop
Platform	Processor Options	Intel Apollo Lake X7-E3950
	CPU Socket	onboard
	Chipset	SoC
	BIOS	AMI SPI Flash BIOS
System Memory	Technology	LPDDR4 2400MHz
	Max. Capacity	Up to 8GB **(Factory default: 8GB pre-installed)**
	Socket	1 x 260-pin SODIMM
Networking	Ethernet Controller	Intel® i210-IT x6
	Ethernet Ports	Up to 6 x Ethernet ports with M12 X-coded connectors
I/O Interface	Serial Ports	**1 x RS232 (console)**
	USB	USB 2.0 Type A x4
	Power Input	M12 K-coded (Ground, DC_IN, Ground, IGN, Chassis Ground)
Storage	HDD/SSD Support	Internal 2.5" drive bay x1 (HDD/SSD is not included)
	Onboard Storage	mSATA socket x1 (default 128 GB)
Expansion	M.2 / SIM	2x M.2 3042 B Key / 4x SIM card readers
Miscellaneous	Watchdog	Yes
	Internal RTC with Li Battery	Yes
Cooling	Processor	Passive CPU heatsink
	System	Fanless
Environmental Parameters	Temperature	-40~70ºC Operating -40~85ºC Non-Operating
	Humidity (RH)	5~90% Operating 5~ 95% Non-Operating
System Dimensions	(WxDxH)	272.4 x 88.3 x 228 mm (10.72" x 3.48" x 8.97")
	Weight	5 kg
Power	Type	M-12, K-coded connector, DC power input
	Input	SKU A: DC 24~36V power input, SKU B: DC 72~110V power input
Approvals and Compliance		RoHS
Ordering Information		ICS-R372 A/B

Industrial SD-WAN Platforms

Wide Temperature LTE Router

The backbone of an Industrial network is built upon wired and wireless connectivity in challenging outdoor conditions. As various end-use applications require different types of networks, a rugged platform is needed to connect IoT devices and to ensure secure/reliable data transmission, and uninterrupted connectivity for smart infrastructure.
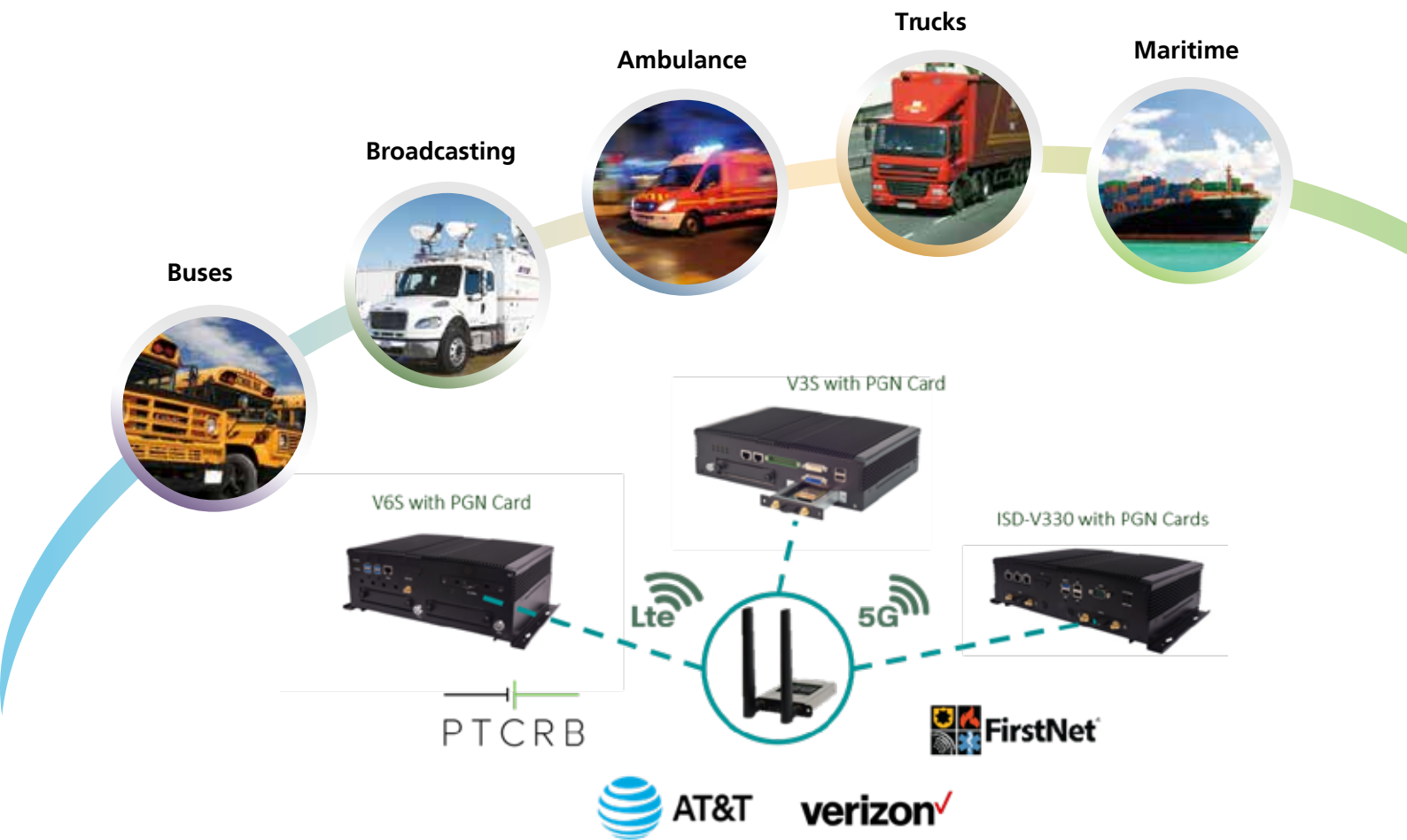

NCR-1510
Rugged LTE Router

Cloud Server

Command Center

Monitoring Center

Mobile Applications

Applications:
- Control of meteorological data monitoring stations to receive data from the device
- Performs preliminary data processing, and transmits the data to the host station

Rugged 5G Outdoor Gateway

Lanner's ISD-O370 rugged gateway with 5G and micro SIM functionality is designed to provide backup cellular connectivity for intelligent traffic management infrastructure because it is reliable and secure. Indeed, operators are more motivated to offer attractive data service plans for large scale projects compatible with carrier aggregation technology, and backup SIM functionality can further provide uninterrupted connectivity by switching to a redundant operator service as needed.

Speed Camera

CCTV Camera

Traffic Roadside Control Box

Wireless Operators

Control Room

Database

Digital Sign

Traffic Light

ISD-O370
Rugged Outdoor Wireless Gateway

Wired Connection

Mobile SD-WAN Platform

Certified by PTCRB, Verizon, AT&T and FirstNet, Lanner PGN Series is a swappable 4G LTE-ready radio modem for mission-critical communications. Optimally designed for intelligent VMS, mobility SD-WAN, 4G LTE failover for business continuity, the PGN Series is fully compatible with Lanner vehicle computers, industrial PCs and network appliances to offer scalability. The swappable caddy design makes the system maintenance easier in field change or upgrade for 24/7 uninterrupted operations.

Product Name	**PGN-300** Swappable 4G LTE CAT-6 Radio Modem for Critical Communications	**PGN-600** Swappable 4G/LTE CAT-12 Radio Modem for Mission-Critical Communications	**PGN-750** Swappable 5G Radio Modem for Mission-Critical Communications
Feature	• 4G LTE CAT-6 Radio Modem Compatible for Lanner Vehicle PC, Industrial PC and Network Appliances • PTCRB and AT&T Certification Ready • 2x SIM Card Readers, 2x 4G LTE Antenna • SATA connector with USB 3.0 signal and Hot Swappable Capability • 4G LTE Failover for Business Continuity • Designed for Network Failover, Surveillance and Vehicle Applications • Swappable Caddy • Certification: PTCRB, AT&T, Verizon • System Compatibility: V3S,V6S,LEC-2290,NCR-1510D/E/F,FW-7573B, ISD-V330	• 4G/LTE CAT-12 Radio Modem Compatible with Lanner Vehicle PC, Industrial PC and Network Appliances • Certified with AT&T and PTCRB, and Compliant with CBRS and FirstNet • 2x SIM Card Readers, 2x 4G LTE Antenna • SATA connector with USB 3.0 signal and Hot Swappable Capability • 4G/LTE Failover for Constant Operations • Designed for Network Failover, Surveillance and Vehicle Applications • Swappable Caddy • Certification: PTCRB, AT&T, FirstNet • System Compatibility: V3S,V6S,LEC-2290,NCR-1510D/E/F,FW-7573B, ISD-V330	• 5G sub6 Radio Modem Compatible with Lanner Vehicle PC • 2x nano SIM Card Readers, 4x Antenna Jack, with antenna / cable kit • SATA connector with USB 3.0 signal and Hot Swappable Capability • 5G Failover for Constant Operations • Designed for Network Failover and Vehicle Applications • Swappable Caddy • Certification: CE, FCC • Quectel RM500Q-AE • System Compatibility: V3S

Industrial SD-WAN Platforms

| | Intel Elkhart Lake | Intel Denverton | Intel Denverton |

Vehicle Gateway		ISD-V330 **NEW**	ISD-O370 **NEW**	NCR-1510
Chassis	Dimension (W x H x D)	273.8 x 73 x 185 mm (10.78" x 2.87" x 7.28")	370 x 83 x 210 mm (14.57" x 3.27"x 8.27")	310 mm x 44 mm x 240 mm (12.20" x 1.73" x 9.45")
	IP Rated	IP30	IP67	N/A
System	Processor Number	Intel® Atom™ x6425E Processor	Intel® Atom™ C3708/C3808	Intel® Atom™ C3308/C3508/C3708
	Chipset	N/A	SoC	SoC
	Processor Graphics	Intel® UHD Graphics	N/A	N/A
System Memory	Technology	DDR4 3200MT/s with SODIMM x 1	DDR4 up to 2133 MT/s ECC SODIMM x 2	SKU A/D:1x 260-pin DDR4 up to 2133 MT/s SODIMM, SKU B/C/E/F:2x 260-pin DDR4 up to 2133 MT/s SODIMM
	Max. Capacity	32GB	64 GB, Deafult ECC RAM 16GB x1	SKU A/D: 32GB, SKU B/C/E/F:64GB
Storage	CF/ Onboard SSD	Onboard eMMC 64GB	Onboard eMMC 64GB	N/A
	HDD/SSD	Internal 2.5" 15 mm drive bay x 1	1x M.2 2242 B key	1 x 2.5" Bay (Optional)
Ethernet Controller		Intel Integrated Ethernet	All Ethernet ports are supported with SR-IOV, 4x GbE LAN, 2x GbE POE+ by M12 X-coded 8pin Female connector with isolation 1.5KVDC	4 x GbE RJ45 Intel® SoC Integrated MAC 2 x SFP Intel® i210 (By SKU) or 2 x GbE RJ45 Intel i210 (By SKU)
Audio Controller		N/A	N/A	N/A
I/O	LAN	GbE RJ45 x 2	4x GbE LAN by M12 X-coded 8pin Female connector	6 x GbE RJ45 or 4 x RJ45 & 2 x GbE SFP (By SKU)
	PoE	N/A	2x GbE POE+ by M12 X-coded 8pin Female connector with isolation 1.5KVDC	N/A
	Display	HDMI x 2	N/A	N/A
	Audio	N/A	N/A	N/A
	Serial I/O	2x RS232/422/485	1 x RS232/485 by M12 X-coded 8pin Female connector with isolation 1.5KVDC	N/A
	GPS	u-blox NEO-M8N GPS+GLONASS dual band	N/A	N/A
	G-sensor	ADXL 345	N/A	N/A
	CAN	CAN 2.0 x1 (option for J1939/J1708)	N/A	N/A
	Digital I/O	4x digital input with isolation, 5-30V/100mA, 4x digital output with isolation, 30V/ 2A dry relay configurable either N.C. or N.O., 1x IGN_DI to MCU	N/A	N/A
	USB	3x USB 2.0, USB 3.0 Type A	1 x USB 2.0 by M12 A-coded 8pin Male connector	2 x USB 3.0 (By SKU), 1 x Mini USB for console
	Expansion	3x PGN Series Removable Caddy, 1x M.2 3042 B key socket with dual nano-SIM slot for 4G LTE, 1x M.2 2230 E key socket for Wi-Fi	1x M.2 304(5)2 B Key socket for 5G 1x M.2 2230 E Key socket for WiFi 6 Mini-SIM & 1x eSIM (reserved)	SKU A/B/C: 1x M.2 B Key 3042 For LTE, 2242 SSD (Signal: USB3.0, SATA) With Nano-SIM; SKU D/E/F: 1x Optional removable M.2 LTE Caddy
	Antenna	SMA antenna hole x12 (includes GPS/GLONASS x1)	5G antenna x4, Wi-Fi antenna x2	SMA antenna hole x6
	Power Input	3-pin terminal block (+,-,ignition) Supports DC 9~54V level, support ignition delay on/off control	Rated 24-36Vdc (range 9-50Vdc), supports with reverse protection by M12 K-coded 5pin Male connector with isolation 1.5KVDC	3-pin terminal block (+, -, ignition), support +12V and +24V vehicle power (+9~36VDC), ATX mode support ignition on/off and delay Power-on/off
	Power Output	N/A	N/A	9~54 VDC
Hardware Monitoring		Fintek F81865 integrated watchdog timer 1~255 level	Fintek F81865 integrated watchdog timer 1~255 level	Fintek F81866AD-I integrated watchdog timer 1~255 level
OS Support		Windows 10 IoT Enterprise Linux kernel 2.6.X or later	Linux: Kernel 2.6.18 or later	Windows: Win10 IoT Linux: Redhat Enterprise 5, Fedora 14, Linux Kernel 2.6.18 or later
Certifications	EMC	CE, FCC Class A, RoHS	CE, FCC Class A, RoHS	CE, FCC Class A, RoHS
	Safety	E13	UL 62368-1, CB	N/A
	Vibration	MIL-STD-810G, Method 514.6	MIL-STD-810G, Method 514.6	N/A
	Shock	MIL-STD-810G, Method 516.6	MIL-STD-810G, Method 516.6	N/A
Environmental	Operating Temperature	-40~70°C / -40-158°F	-40~70°C Operating (SKU D & F) -40~60°C Operating (SKU C & E)	-40~70°C / -40-158°F (SKU C to 60°C)
	Storage Temperature	-40~85°C / -40-185°F	-40~85°C Ambient storage	-40~85°C / -40-185°F
	Humidity	5%~95% @ 40°C / 104°F (Storage Level)	5%~95% @ 40°C / 104°F (Storage Level)	5%~95% @ 40°C / 104°F (Storage Level)
Net Weight (Kg)		4.5	4.6	4

Mounting Kits

Wallmount Bracket 3
(143 x 27 mm)

Wallmount Bracket 4
(136 x 42 mm)

Wallmount Bracket 5
(135.4 x 44 mm)

Rackmount Bracket
(483x 195 x 44 mm)

VESA Mount Bracket
(130 x 132 mm)

PC Side Bracket

Display Side Bracket

DIN-Rail Mount Bracket

Put DIN rail Mount Bracket on rear of the monitor VESA hole.

Slide the monitor into the DIN rail Mounting Track.

DIN-Rail Mount Accessory Kit

All wallmount kits have these three holes reserved for a DIN-Rail mount.

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