Lanner

Industrial Automation

Embedded Box PC for Industry 4.0 and ICS Cyber Security

Innovating Intelligent Solutions in Industry 4.0

Over the past ten years, Lanner has dedicated itself in supplying the state-of-the-art hardware solutions for IoT applications and millions of Lanner hardware platforms have been deployed worldwide. The strong preference proves our dedication for committing ourselves to designing the highest quality hardware solutions for the IoT Era.

We have strengthened our embedded computing domain by building up our expertise in designing embedded x86/RISC computing platforms that feature the latest networking, input/output and storage technologies, making a full range of embedded IPCs and rugged computing solutions available.

Over the recent years our extensive embedded solutions have met the various specifications and configurations required by the mainstream vertical markets. Today, we have comprehensive product lines designed and manufactured for industrial automation, energy monitoring, substation automation and industrial cyber security applications.

With wide product lineups, Lanner's Industry 4.0 division is expected to continue offering more reliable, high quality embedded platforms to help our customers and partners reduce development efforts and costs, while fulfilling the demand for more intelligent IoT-ready solutions.

Danilar Wu

Director - Industry 4.0 Division
Smart Internet Platform Business Unit

Factory Automation

Lanner delivers top-of-the-line x86 automation box PCs designed for maximizing manufacturing productivity and efficiency. Featuring compact design, flexible I/O selections and PCIe expansion capability, our fanless embedded box PCs have been meeting many challenging specifications and configurations required by almost all industrial automation applications.

- Machine Vision Inspection System
- Machine Automation PC Controller
- Compact Gateway for HMI and MES

Substation Automation

Lanner's rackmount appliances for substation automation offer high integration of automation devices and sensors for control consolidation, infrastructure monitoring and data transmission to achieve the highest stability and productivity.

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

The rise of Industry 4.0 has been an enormous driving force for automation, control technology and industrial communications. To meet the requirements for mission-critical applications for factory automation, substation automation, energy management and industrial cyber security, Lanner offers a wide selection of fanless industrial PCs featuring the cutting-edge technologies, rugged design, versatile I/Os and customizable options.

Industrial Cyber Security

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

- Power Plant Cyber Security
- ICS Cyber Security
- Industrial UTM / Firewall
- Security Gateway
- SCADA Network Security

Energy Monitoring

We have robust and compact Box PCs for collecting and monitoring data from meters and sensors deployed with energy generating sites. Our computing systems are innovated to optimize performance and efficiency of energy generation and usages.

- Renewable Energy Monitoring
- Building Automation
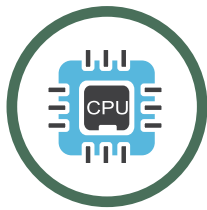- Factory Environment Monitoring
- Greenhouse Control

Industrial Automation & Cyber Security Box PCs

Lanner's embedded box PCs are designed for wide deployment in application specific environments, offering stability, longevity, high availability and a perfect balance between size, cost, performance and power consumption.

Various Mounting Options

Including VESA, wallmount, rackmount and DIN-Rail, making installation obstacles a non-issue.

High-Performance CPU

Exceptional computing performance, and outstanding energy efficiency made possible by Intel® Core™, Atom™ or Celeron® processors.
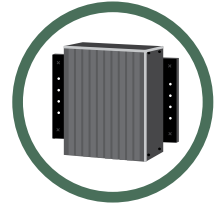
Advanced Protection

Most Lanner systems feature protected connectors to cope with harsh environments, such as isolated COM/DIO with ESD/surge protection, Class I, Div.2 Anti-Explosive and magnetic isolated LAN ports.

Fanless Design
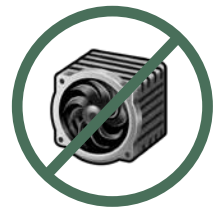
Without the most frequently replaced part, the systems can be widely deployed in various environments.
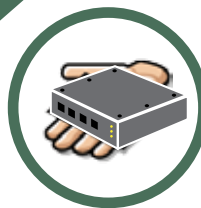
Compact Design

Simplifying deployments and maintenance at locations with limited and confined spaces.

LEC-2281

LEC-3030T

MIO Expansion Layer

Making available various PCIe ports, audio ports, DI/DO ports, serial ports, USB ports, LAN ports, PoE ports, HDD/SSD and mSATA sockets.

LAN Bypass

Bypass ports allow uninterrupted network traffic by providing backup LAN connection. Lanner has improved bypass functionality for higher reliability and greater control.

Easy-to-open Chassis

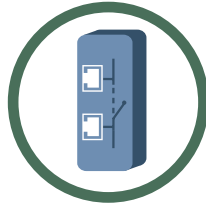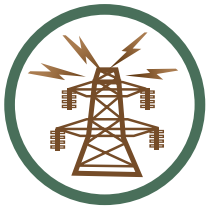No tools required for installing and replacing internal CF, HDD, memory and mini-PCIe devices.

IEC 61850-3 Compliance

Most of our LEC-3/6 product lines pass IEC 61850-3 & IEEE-1613 compliance. The test certifies electrostatic discharge, fast transient (burst immunity), surge immunity, radiated RF susceptibility, and other criteria.
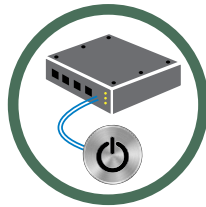
Easy Access to Power Switch

Allowing hassle-free access to power switches for booting up or shutting down devices housed in small spaces.
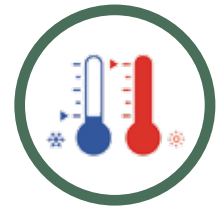
Wide Temperature Range

Withstanding and thriving in harsh conditions with temperatures as low as -40°C and as high as 75°C.

30+ Year ODM Expertise

Lanner commits itself to delivering complete, cost-effective solutions customized to clients' specific needs. We provide frontline technical products for industry-leading name brands coupled with quality service. Our thorough understanding of market nuances stems from 30 years of experience across a variety of vertical markets and makes us a first-choice vendor for numerous ODM customers.

Industrial Automation

Machine Vision

Enabling Multi-vision Verification and Testing

LEC-2137

- Embedded Box PC for Machine Vision Applications

- Intel® Atom™ Apollo Lake Platform

- 6x 10/100/1000 Mbps Ethernet Ports

- 2x USB 3.0 & 2x USB 2.0 Ports

- 1x RS-232/422/485 Serial Ports

LEC-2137

Monitor

PLC

Robot Controller

Camera

Camera

Camera

Robot Arm

Conveyor

Conveyor
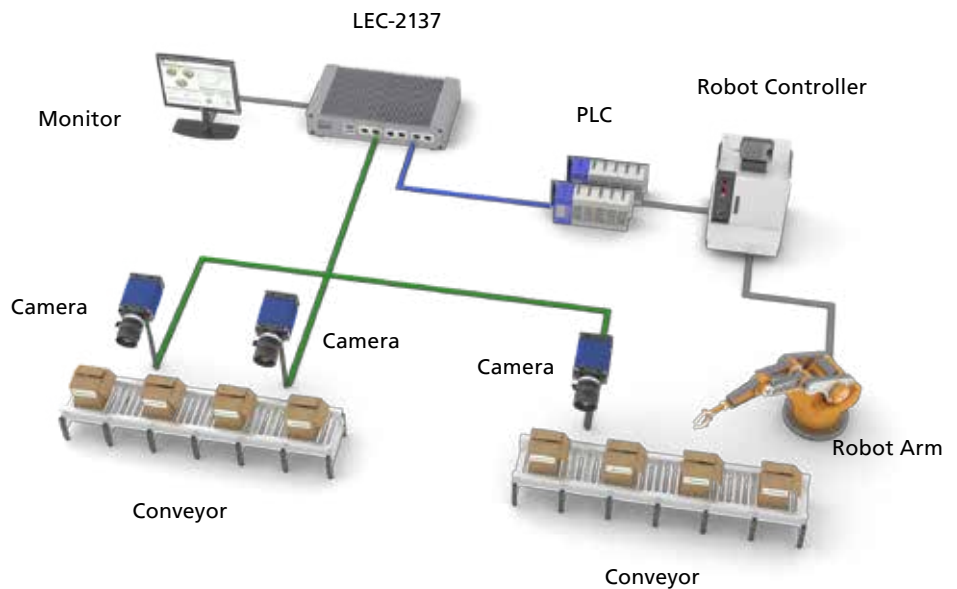
Machine Automation

Industrial Gateway for Manufacturing Precision and Quality

LEC-7230

- Intel® Celeron® J1900/N2930 or Atom™ E3825/
  E3845 Processor

- Fanless & Dust-proof Design

- Mini-PCIe Slot for Wireless Communication

- 2x LAN Ports, 3x USB, RS-232/422/485

- VGA & HDMI Display Interface

LEC-2281

- Intel® Core™ i7/i5/i3 CPU with QM87 PCH

- Intel® HD Graphics 4600

- HDMI/VGA/DVI-D & 3 Independent Display Ports

- 2x USB 3.0 & 4x USB 2.0 Ports

- Mini-PCI-E Slots/1x PCI or 1x PCI-E x16

- 2x 2.5" HDD/SSD Bays with RAID 0/1

Panel PC

Industrial Switch

LEC-7230

LEC-2281

PLC

Flow
Meter

Motion
Controller

PLC

Temperature
Meter

Pressure
Meter
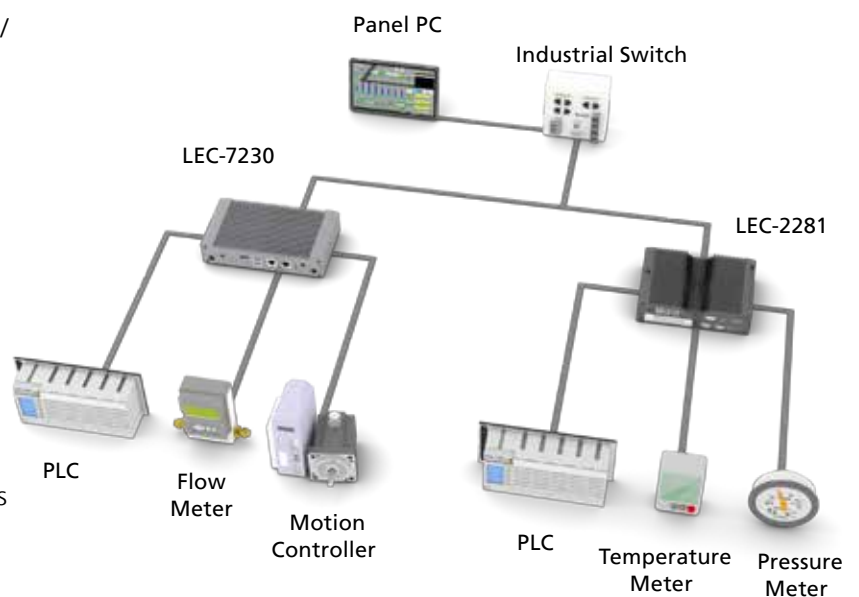
Manufacturing Execution System

Enabling Smart Manufacturing Execution System

LEC-7070

- Intel® Core™ i7/i3 CPU with HM65 PCH

- Fanless & Dust-proof Design

- Intel® HD Graphics 4000, 1x VGA & 1x HDMI

- 2x LAN Ports, 2x Serial COM Ports, 4x USB 2.0 Ports
  & 2x Mini-PCIe for Wireless Communications

- Integrated SIM Card Reader

- Wide Temperature Support -20°C ~ 55°C

Operation Center

Internet

Monitor

LEC-7070

PLC Controller

Photoelectric Switch

Proximity Sensor

Push Button

LED Indicator

Barcode Reader

RFID Reader
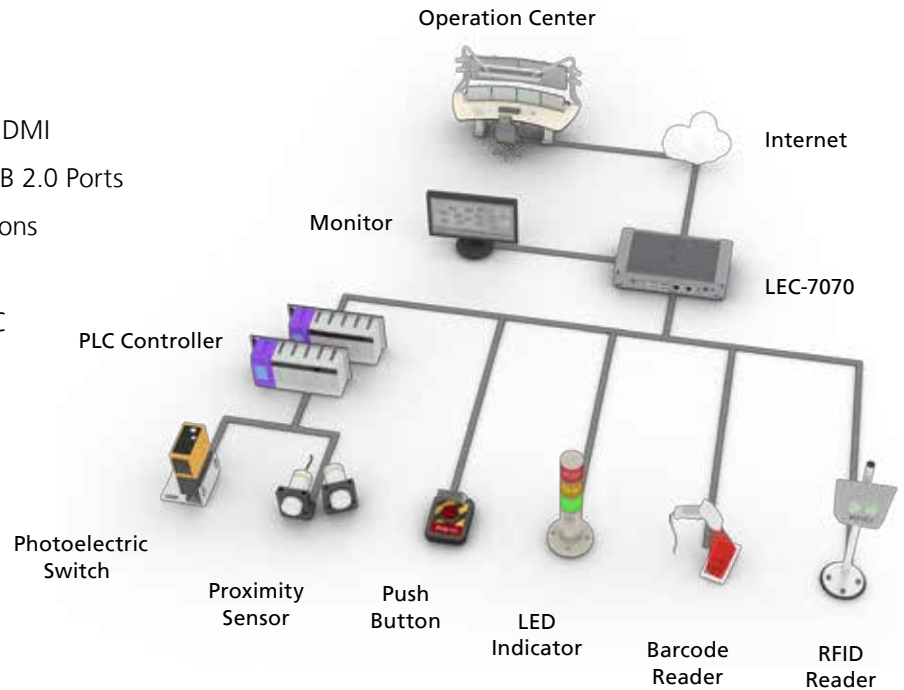
Physical Security

Enhancing Enterprise Security and Personal Safety

LEC-2580

- Intel® Core™ i7/i5/i3 CPU

- Intel® HD Graphics 520 & 2x HDMI

- 6x LAN Ports, 4x Serial COM Ports, 4x USB 3.0
  & 2x USB 2.0 Ports

- 2x 2.5" HDD/SSD with RAID 0/1

- Wide Temperature Support 0°C ~ 60°C

Operation Center

Internet

LEC-2580

Alarm

Alarm Panel

Camera

Camera

Sensor

Camera

Camera

POS

POS

POS

POS

Multi-Purpose Embedded PCs

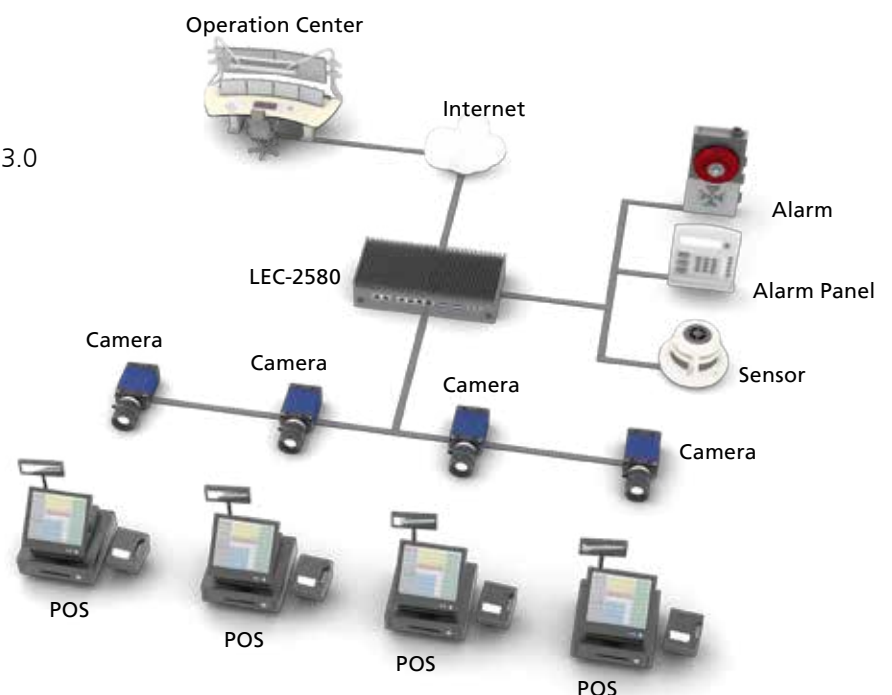|		Performance with Expansion	Performance with Expansion	Performance with Expansion
	Model Name	**LEC-2281**	**LEC-2284**	**LEC-2280**
Processor System	CPU	Intel® Core™ i7-4700EQ/i5-4400E/i3-4102E	Intel® Core™ i7-4700EQ/i5-4400E/i3-4102E	Intel® Core™ i7-3612QE/i7-3555LE/i5-3610ME/ i3-3120ME
	Frequency	2.4 GHz/2.7 GHz/1.6 GHz	2.4 GHz/2.7 GHz/1.6 GHz	2.1 GHz/2.5 GHz/2.7 GHz/2.4 GHz
	Core Number	4C (i7)/2C (i5/i3)	4C (i7)/2C (i5/i3)	4C (i7-3612QE)/2C (i7-3555LE/i5/i3)
	Chipset	Intel® QM87	Intel® QM87	Intel® HM65
Fanless		Yes	Yes	Yes
Memory	Technology	DDR3L 1333/1600 MHz	DDR3L 1333/1600 MHz	DDR3/DDR3L 1333/1600 MHz
	Max. Capacity	16GB	16 GB	16GB
	Socket	2x 204-pin SODIMM	2x 204-pin SODIMM	2x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics 4600	Intel® HD Graphics 4600	Intel® HD Graphics 4000
	VGA	1x VGA, 1920 x 1080 @60Hz	1x VGA, 1920 x 1080 @60Hz	1x VGA, 1920 x 1080 @60Hz
	DVI-D	1x DVI-D, 1920 x 1200 @60Hz	1x DVI-D, 1920 x 1200 @60Hz	1x DVI-D, 1920 x 1200 @75Hz
	HDMI	1x HDMI, 3840 x 2160 @24Hz or 2560 x 1600 @60Hz	1x HDMI, 3840 x 2160 @24Hz or 2560 x 1600 @60Hz	1x HDMI, 1920 x 1200 @60Hz
Audio	Codec	Realtek ALC886	Realtek ALC886	Realtek ALC886
	Interface	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out
Ethernet	Controller	Intel® i217LM/i210AT	Intel® i217LM/i210AT	Intel® 82574L
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	2x RJ45	2x RJ45	2x RJ45
Storage	Type	SATA III	SATA III	-
	Installation	1x mSATA Socket	1x mSATA Socket	-
	Type	SATA III	SATA III	SATA III
	Installation	2x 2.5" HDD/SSD Drive Bay (Raid 0/1)	2x 2.5" HDD/SSD Removable Drive Tray (Raid 0/1)	1x 2.5" HDD/SSD Drive Bay
I/O	Serial Port	2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male
	Digital I/O	-	-	-
	USB 2.0	4x Type A	4x Type A	6x Type A
	USB 3.0	2x Type A	2x 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	-	-	-
	LED	Power/HDD	Power/HDD	Power/HDD
	Antenna Hole	2x SMA Antenna Holes	2x SMA Antenna Holes	2x SMA Antenna Holes
Expansion Interface	Mini-PCIe	1x Full-sized Socket with SIM Card Reader/1x Full-sized Socket	1x Full-sized Socket with SIM Card Reader/1x Full-sized Socket	1x Full-sized Socket with SIM Card Reader/1x Full-sized Socket
	PCI	1(in the packing)	2 (in the packing)	2 (LEC-2280P2)
	PCI Express	1 x PCI Express x16 (default)	2 x PCI Express x8 (default)	1 x PCI Express x8 (LEC-2280E)
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	9 VDC~30 VDC	9 VDC~30 VDC	9 VDC~30 VDC
	Connector	2-pin Terminal Block	2-pin Terminal Block	2-pin Terminal Block
	Power Consumption (Idle)	25.5W	TBD	17.2W
	Power Consumption (Full Load)	36.2W	TBD	34W
	Power Adaptor	AC to DC, AC 90 to 240 VAC Input, DC 19VDC /4.74A 90W	AC to DC, AC 90 to 240 VAC Input, DC 19VDC /4.74A 90W	AC to DC, AC 90 to 240 VAC Input, DC 19VDC /4.74A 90W
Environment	Operating Temperature	-10°C~50°C (with Industrial-grade Components)	-10°C~50°C (with Industrial-grade Components)	-20°C~55°C (with Industrial-grade Components)
	Storage Temperature	-20°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 5~500Hz, 40 Mins/Axis	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)	277 x 78 x 195 mm	277 x 110 x 195 mm	277 x 67 x 190 mm (LEC-2280E) 277 x 89 x 190 mm (LEC-2280P2)
	Construction	Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC
	Weight	3.8 kg	4.2 kg	3 kg
	Mounting	Rack, VESA, Wallmount	Rack, VESA, Wallmount	Rack, VESA, Wallmount
Driver Support	Microsoft Windows	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	ES 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.x	Kernel 3.x	Kernel 2.6.3x
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Ordering Information		LEC-2281-711A/LEC-2281-511A/LEC-2281-311A	LEC-2284-711A/LEC-2284-511A/LEC-2284-311A	LEC-2280E-3A/5A/7A/7B,LEC-2280P2-3A/5A/7A/7B

Machine Vision	Low Power with Expansion	Machine Vision NEW	Industrial Gateway
LEC-2280-7BN	**LEC-2430**	**LEC-2580**	**LEC-2530**
Intel® Core™ i7-3612QE	Intel® Celeron® J1900/N2930 or Intel® Atom™ E3845	Intel® Core™ i7-6600U/i5-6300U/i3-6100U	Intel® Atom™ E3825
2.1 GHz	2 GHz/1.83 GHz/1.91 GHz	2.6 GHz/2.4 GHz/2.3 GHz	1.33 GHz
4C	4C	2C	2C
Intel® HM65	SOC	SOC	SOC
Yes	Yes	Yes	Yes
DDR3 1333/1600 MHz	DDR3L 1333 MHz	DDR3L 1333/1600 MHz	DDR3L 1066 MHz
16GB	4GB	16GB	8GB
2x 204-pin SODIMM	1x 204-pin SODIMM	2x 204-pin SODIMM	1x 204-pin SODIMM
Intel® HD Graphic Engine 4000	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
1x VGA, 2048 x 1536 @60Hz	1x VGA, 1600 x 1200	-	1x VGA, 1600 x 1200
1x DVI-D, 1600 x 1200 @75Hz	-	-	-
1x HDMI, 1920 x1080 @60Hz	1x HDMI, 1920 x 1080	2x HDMI, 3840 x 2160@24Hz or 2560 x 1600@60Hz	1x HDMI, 1920 x 1080
-	Realtek ALC886	Realtek ALC886	Realtek ALC886
-	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out
Intel® 82574L	Intel® i210	Intel® i219 and i211	Intel® i210
10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
4/8 x RJ45	2x RJ45	6x RJ45 (Including 4 PoE Option)	2x RJ45
-	SATA II	SATA III	PATA
-	1x mSATA Socket	1x mSATA Socket	1x CF Type I/II Socket
SATA II	SATA II	SATA III	SATA II
2x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	2x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay
2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male	4x RS-232/422/485, DB9 Male	4x RS-232/422/485, DB9 Male
-	-	-	2x DI, 2x DO with +5V TTL
6 x Type A	4x Type A	2x Type A	4x Type A
-	1x Type A	4x Type A	1x Type A
1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
-	-	Yes	Yes
Power/HDD	HDD/3G	Power/HDD/3G/Wifi	Power/HDD/3G
2x SMA Antenna Holes	1x SMA Antenna Hole	2x SMA Antenna Holes	2x SMA Antenna Holes
1x Full-sized Socket with SIM Card Reader / 1x Full-sized Socket	1x Full-sized Socket with SIM Card Reader	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket
-	1(default)	-	-
1x PCI Express x8 (LEC-2280E-7BN4)	1 x PCI Express x1(in the packing)	-	-
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	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
ATX	ATX	ATX	ATX
9 VDC~30 VDC	9 VDC~30 VDC	12 VDC~30 VDC	9 VDC~30 VDC
2-pin Terminal Block	2-pin Terminal Block	2-pin Terminal Block	2-pin Terminal Block
34W	11.4W	TBD	8.42W
57W	17.5W	TBD	12.42W
AC to DC, AC 90 to 240 VAC Input, DC 19V/4.74A 90W	AC to DC, AC 90 to 240 VAC Input, DC 19VDC /3.95A 75W	AC to DC, AC 90 to 240 VAC Input, DC 24VDC /2.5A 60W/120W	-
-10°C~45°C (with Industrial-grade Components)	0°C~55°C (with Industrial-grade Components)	0°C~60°C (with Industrial-grade Components)	-20°C~55°C (with Industrial-grade Components)
-20°C~70°C	-20°C~70°C	-20°C~70°C	-20°C~70°C
5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
IEC 60068-2-64, 0.5Grms, Random 5 ~500 Hz, 40 Mins/Axis	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 5~500Hz, 40 Mins/Axis
276 x 67 x 194 mm (LEC-2280E) 276 x 89 x 194 mm (LEC-2280P2)	268 x 65.5 x 195 mm	210 x 60 x 143.8 mm	273.8 x 60 x 144 mm
Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC
2.7Kg	2.7 kg	TBD	2 kg
Rack, VESA, Wallmount	Rack, VESA, Wallmount	Rack, VESA, Wallmount, DIN-rail	Rack, VESA, Wallmount, DIN-rail
WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	Win 7/Win 10 Full	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro
Kernel 2.6.1x	Kernel 3.12	Linux	Kernel 3.12
CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
LEC-2280E-7BN4/LEC-2280E-7BN8	LEC-2430-J11A/LEC-2430-N11A/LEC-2430-E51A	LEC-2580/LEC-2580P	LEC-2530

Embedded Compact PCs

	Small Form Factor	Small Form Factor	Small Form Factor	Small Form Factor

Model Name		LEC-7233 NEW	LEC-7230L/LEC-7230M	LEC-7230	LEC-7230-CT1 NEW
Processor System	CPU	Intel® Celeron® N2807	Intel® Celeron® J1900	Intel® Celeron® J1900/N2930 or Intel® Atom™ E3845	Intel® Celeron® J1900
	Frequency	1.58 GHz	2 GHz	2 GHz/1.83 GHz/1.91 GHz	2 GHz
	Core Number	2C	4C	4C	4C
	Chipset	SOC	SOC	SOC	SOC
Fanless		Yes	Yes	Yes	Yes
Memory	Technology	DDR3L 1333 MHz	DDR3L 1333 MHz	DDR3L 1333 MHz	DDR3L 1333 MHz
	Max. Capacity	4GB	8GB	8GB	8GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
	VGA	-	1x VGA, 1600 x 1200	1x VGA, 1600 x 1200	1x VGA, 1600 x 1200
	DVI	-	-	-	-
	HDMI	1x HDMI, 1920 x 1080	1x HDMI,1920 x 1080	1x HDMI,1920 x 1080	1x HDMI,1920 x 1080
Audio	Codec	-	Realtek ALC662	Realtek ALC886	Realtek ALC886
	Interface	-	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out
Ethernet	Controller	Intel® i211	Intel® i211-AT	Intel® i210	Intel® i210
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	3x RJ45	2x RJ45	2x RJ45	2x RJ45
Storage	Type	SATA II	PATA	PATA	-
	Installation	1x mSATA Socket	1x CF Type I/II Socket	1x CF Type I/II Socket	-
	Type	SATA II	SATA II	SATA II	SATA
	Installation	1x SATA Connector (Reserved)	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay
I/O	Serial Port	2x RS-232/485, D-Sub9 Male	2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male
	Digital I/O	4x DI, 4x DO, 1x GND	-	2x DI, 2x DO with +5V TTL	-
	USB 2.0	2 x Type A	2x Type A	2x Type A	5x Type A
	USB 3.0	1 x Type A	1x Type A	1x Type A	1x Type A
	Power-On/Reset Button	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off	1x Power On/Off, 1x Reset
	Remote	-	-	Yes	-
	LED	Power/HDD/3G	Power/HDD/3G	Power/HDD/3G	Power/HDD/3G
	Antenna Hole	1x SMA Antenna Hole	1x SMA Antenna Hole	1x SMA Antenna Hole	2x SMA Antenna Hole
Expansion Interface	Mini-PCIe	1x Full-sized socket with SIM Card Reader/1x Half-sized Socket	1x Full-sized Socket with SIM Card Reader	1x Full-sized Socket with SIM Card Reader	1x Full-sized Socket with SIM Card Reader
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	Watchdog Timer 1 ~ 255 Level Time Interval System Reset, Software Programmable
Power	Power Type	ATX	ATX	ATX	ATX
	Power Supply Voltage	12 VDC	12 VDC	12 VDC	12 VDC
	Connector	DC Jack With Lock	DC Jack With Lock	DC Jack With Lock	DC Jack With Lock
	Power Consumption (Idle)	TBD	7.36W	8W	8.42W
	Power Consumption (Full Load)	TBD	11.43W	12.5W	10W
	Power Adaptor	TBD	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	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W
Environment	Operating Temperature	0°C~50°C	LEC-7230L: 0°C~40°C LEC-7230M: 0°C~60°C	0°C~55°C (with Industrial-grade Components)	0°C~55°C (with Industrial-grade Components)
	Storage Temperature	-20°C~70°C	-20°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	0%~90%, 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	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)	152 x 30 x 143 mm	LEC-7230L: 195.6 x 41 x 146.8 mm LEC-7230M: 198 x 41 x 143.8 mm	198 x 42 x 145 mm	198 x 49.3 x 144.8 mm
	Construction	SGCC	LEC-7230L: Plastic LEC-7230M: Aluminum + SGCC	Aluminum	Aluminum + SGCC
	Weight	TBD	LEC-7230L: 0.9 kg LEC-7230M: 1.2 kg	1.07 kg	0.9 kg
	Mounting	VESA, Wallmount	Rack, VESA, DIN-Rail, Wallmount	Rack, VESA, DIN-Rail, Wallmount	VESA, DIN-Rail, Wallmount
Driver Support	Microsoft Windows	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7/Win 7/Win 8.1
	Linux	Kernel 3.12	Kernel 3.12	Kernel 3.12	Kernel 3.12
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Ordering Information		LEC-7233	LEC-7230L-J11A LEC-7230M-J11A	LEC-7230-J11A/LEC-7230-N11A LEC-7230-E51A	LEC-7230-CT1

	Small Form Factor	Small Form Factor	Machine Vision	Machine Vision
	LEC-7070	**LEC-7050**	**LEC-2137** NEW	**LEC-7220**
	Intel® Core™ i7-3517UE/i3-3217UE/Celeron® 807UE	Intel® Cedarview N2800	Intel® Apollo Lake	Intel® Cedarview N2800
	1.7 GHz/1.6 GHz/1.0 GHz	1.86 GHz	1.6 GHz	1.86 GHz
	2C (i7/i3)/1C (Celeron)	2C	4C	2C
	Intel® HM65	Intel® NM10	SOC	Intel® NM10
	Yes	Yes	Yes	Yes
	DDR3/DDR3L 1333/1066 MHz	DDR3 800/1066 MHz	DDR3L 1333/1600/1867 MHz	DDR3 800/1066 MHz
	8GB (i7/i3)/ 4GB (Celeron)	4GB	8GB	4GB
	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM
	Intel® HD Graphics	Intel GMA 3650	Intel® HD Graphics	Intel® GMA 3650
	1x VGA, 2048 x 1536	1x VGA, 1920 x 1200	1x VGA, 1600 x 1200	1x VGA, 1920 x 1200
	-	1xDVI-D,1920 x 1200	-	-
	1x HDMI, 1920 x 1080	-	1x HDMI, 3840 x 2160@30Hz	-
	Realtek ALC886	Realtek ALC886	-	-
	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	-	-
	Intel® 82583V	Intel® 82754/82583V	Intel® i210	Intel® 82583V/AX88179
	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	2x RJ45	2x RJ45	6x RJ45 (Including 4 PoE Option)	4/6 x RJ45
	SATA II	PATA	SATA III	PATA
	1x CFast Socket	1x CF Type I/II Socket	1x mSATA Socket	1x CF type I/II Socket
	SATA II	SATA II	SATA III	SATA II
	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay
	2x RS-232, DB9 Male	2x RS-232/422/485, DB9 Male	1x RS-232/422/485, DB9 Male	-
	4x DI or 4x DO with +5V TTL	-	-	-
	4x Type A	2x Type A	2x Type A	4 x Type A
	-	-	2x Type A	-
	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	Power-On
	Yes	Yes	-	-
	Power/HDD/3G	Power/HDD/3G	Power/HDD/3G	Power/HDD
	2x SMA Antenna Holes	2x SMA Antenna Holes	2x SMA Antenna Hole	2x SMA Antenna Hole
	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket	1x Half-sized Socket with SIM Card Reader/1x Full-sized Socket	1x Full-sized socket with SIM Card Reader
	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	Watchdog Timer 1 ~ 255 Level Time Interval System Reset, Software Programmable
	ATX	ATX	ATX	ATX
	12 VDC	24 VDC	24 VDC	12 VDC
	DC Jack With Lock	2-pin Terminal Block	2-pin Terminal Block	DC Jack With Lock
	15W	12.5W	TBD	27W
	18W	20W	TBD	32W
	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W	AC to DC, AC 90 to 240 V AC Input, DC 24VDC/2.5A 60W	AC to DC, AC 90 to 240 VAC Input, DC 24VDC/2.5A 60W /120W	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W
	-20°C~55°C (with Industrial-grade Components)	-20°C~55°C (with Industrial-grade Components)	0°C~55°C (with Industrial-grade Components)	-20°C~55°C (with Industrial-grade Components)
	-20°C~70°C	-20°C~70°C	-20°C~70°C	-20°C~70°C
	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, non-condensing	5%~95%, Non-condensing
	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	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
	198 x 42 x 145 mm	198 x 42 x 145 mm	198 x 41 x 143.8 mm	198 x 42 x 145 mm
	Aluminum	Aluminum	Aluminum + SGCC	Aluminum + SGCC
	1.07 kg	1.07 kg	TBD	1.07 kg
	Rack, VESA, DIN-Rail, Wallmount	Rack, VESA, DIN-Rail, Wallmount	Rack, VESA, Wallmount, DIN-rail	Rack, VESA, DIN-Rail, Wallmount
	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	Win 7/Win 10 Full	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro
	Kernel 2.6.2x	Kernel 3.15	LInux	Kernel 3.1
	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
	LEC-7070/LEC-7070-711A/LEC-7070-311A	LEC-7050B	LEC-2137	LEC-7220N4/LEC-7220N6

Video Driven Embedded PCs

Surveillance Platform

Surveillance Platform

Performance Platform

Model Name		LEC-7331	LEC-7330	LEC-7950
Processor System	CPU	Intel® Celeron® J1900/N2930 or Intel® Atom™ E3845	Intel® Celeron® J1900/N2930 or Intel® Atom™ E3845	Intel® Core™ i3-2310E/SandyBridge Celeron® 847E
	Frequency	2 GHz/1.83 GHz/1.91 GHz	2 GHz/1.83 GHz/1.91 GHz	2.1 GHz/1.10 GHz
	Core Number	4C	4C	2C
	Chipset	SOC	SOC	Mobile Intel® HM65
Fanless		Yes	Yes	Yes
Memory	Technology	DDR3L 1333 MHz	DDR3L 1333 MHz	DDR3 1066/1333 MHz
	Max. Capacity	8GB	8GB	16GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	2x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics 3000
	VGA	1x VGA, 1600 x 1200	1x VGA, 1600 x 1200	1x VGA, 2560 x 1600
	DVI	-	-	1x DVI-D, 1920 x 1200
	HDMI	1x HDMI, 1920 x 1080	1x HDMI, 1920 x 1080	1x HDMI, 1920 x1200
Audio	Codec	Realtek ALC886	Realtek ALC886	Realtek ALC886
	Interface	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	RCA x4 for Right/Left Line-in/Line-out Channels
Ethernet	Controller	Intel® i210	Intel® i210	Intel® 82583V
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Interface	2x RJ45	2x RJ45	2x RJ45
Storage	Type	PATA	PATA	-
	Installation	1x CF Type I/II Socket	1x CF Type I/II Socket	-
	Type	SATA II	SATA II	SATA II
	Installation	1x 2.5" or 3.5" HDD/SSD Drive Bay	1x 2.5" or 3.5" HDD/SSD Drive Bay (Removable)	1x 2.5" HDD/SSD Drive Bay
I/O	Serial Port	2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male
	Digital I/O	2x DI, 2x DO with +5V TTL	2x DI, 2x DO with +5V TTL	4x DI, 4x DO with +5V TTL
	USB 2.0	2x Type A	2x Type A	4 x Type A
	USB 3.0	1x Type A	1x 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	Yes
	LED	Powe/HDD/3G	Powe/HDD/3G	Powe/HDD/3G
	Antenna Hole	2x SMA Antenna Holes	2x SMA Antenna Holes	1x SMA Antenna Hole
Expansion Interface	Mini-PCIe	1x Full-sized Socket with SIM Card Reader	1x Full-sized Socket with SIM Card Reader	1x Full-sized Socket with SIM Card Reader /1x Half-sized Socket
	PCI	-	-	-
	PCI Express x1	-	-	-
	PCI Express x4	-	-	-
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	12 VDC	12 VDC	24 VDC
	Connector	DC Jack With Lock	DC Jack With Lock	2-Pin Terminal Block
	Power Consumption (Idle)	12.3W	12.3W	14W
	Power Consumption (Full Load)	15.7W	15.7W	44W
	Power Adaptor	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W	AC to DC, AC 90 to 240 VAC Input, DC 24VDC/2.5A 60W
Environment	Operating Temperature	0°C~55°C (with Industrial-grade Components)	0°C~55°C (with Industrial-grade Components)	-20°C~55°C (with Industrial-grade Components)
	Storage Temperature	-20°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 5~500Hz, 40 Mins/Axis	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)	200 x 70.4 x 143.8 mm	200 x 88.4 x 143.8 mm	278 x 59 x 175 mm
	Construction	Aluminum + SGCC	Aluminum + SGCC	Aluminum + SGCC
	Weight	1.3 kg	1.8 kg	2.5 kg
	Mounting	Rack, VESA, DIN-Rail, Wallmount	Rack, VESA, DIN-Rail, Wallmount	Rack, VESA, DIN-Rail, Wallmount
Driver Support	Microsoft Windows	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	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 2.4.18 or later
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Ordering Information		LEC-7331-J11A/LEC-7331-N11A LEC-7331-E51A	LEC-7330-J11A/LEC-7330-N11A LEC-7330-E51A	LEC-7950A/LEC-7950B
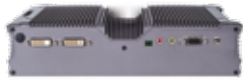
Performance Platform	Wide Temperature Platform	4K OPS Signage Platform	Rugged Platform
LEC-7920	**LEC-7480**	**LEC-7388S**	**REC-2740**
Intel® Core™ i7-620M/Celeron® P4500	Intel® Core™ i7-3517UE/i3-3217UE	Intel® Core™ i5-4400E/ I3-4102E/Celeron® 2000E	Intel® Core™ i7-2610UE
2.66 GHz/1.86 GHz	1.7 GHz/1.6 GHz	2.7 GHz/1.6 GHz/2.2 GHz	1.5 GHz
2C	2C	2C	2C
Intel® HM55	Intel® HM65	Intel® QM87	Intel® HM65
Yes	Yes	-	Yes
DDR3 800/1066 MHz	DDR3/DDR3L-1333/1600 MHz	DDR3L 1333/1600 MHz	DDR3 1066/1333 MHz
8GB	8GB	16GB	8GB
2x 204-pin SODIMM	1x 204-pin SODIMM	2x 204-pin SODIMM	1x 204-pin SODIMM
Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics 4600	Intel® HD Graphics 3000
-	1x VGA, 1920 x 1080	-	1x VGA, 1920 x 1080
1x DVI-I, 1920 x 1080 / 1x DVI-D, 1920 x 1080	-	1x Display Port, 3840 x 2160 @60Hz	-
-	1x HDMI, 1920 x 1080	2x HDMI, 4096 x 2304 @24Hz	-
Realtek ALC886	Realtek ALC886	Realtek AL886	Realtek ALC886
2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	2x Phone Jack for MIC-in and Line-out	M12
Intel® 82574L x2	Intel® 82583V	Intel® i217	Intel® 82583V
10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
2x RJ45	2x RJ45	1x RJ45	2x RJ45
-	SATA III	-	-
-	1x CFast Socket	-	-
SATA II	SATA III	SATA II/III	SATA II
1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay (Removable)
2x RS-232/422/485, DB9 Male	2x RS-232/422/485, DB9 Male	-	-
4x DI, 4x DO with +5V TTL	2x DI, 2x DO with +5V TTL	2x5 Terminal Block Including Power_ON, Power_Detect, Power Status, UART,FAN	-
4x Type A	4x Type A	2x Type A	2 (M12)
-	-	3x Type A	-
1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
Yes	Yes	-	-
Powe/HDD	Powe/HDD/3G	-	Power
1x SMA Antenna Hole	2x SMA Antenna Holes	2x SMA Antenna Holes	-
1x Full-sized Socket with SIM Card Reader	1x Full-sized Socket with SIM Card Reader/1x Half-sized Socket	1x Full-sized Socket	2x Full-sized Socket
-	-	-	-
-	-	-	-
-	-	-	-
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	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
ATX	ATX	ATX	ATX
9 VDC~30 VDC	12 VDC	12 VDC	15 VDC~30 VDC
DC Jack With Lock	DC Jack With Lock	DC Jack With Lock	M12
21W	17.5W	TBD	TBD
41W	18.6W	TBD	TBD
AC to DC, AC 90 to 240 VAC Input, DC 12VDC/6.2A 75W	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W	AC to DC, AC 90 to 240 VAC Input, DC 12VDC/5A 60W	-
0°C~45°C (with Industrial-grade Components)	-35°C~75°C (with Industrial-grade Components)	-5°C~45°C (with Industrial-grade Components)	-25°C~55°C (with Industrial-grade Components)
-20°C~80°C	-45°C~85°C	-20°C~80°C	-25°C~75°C
5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
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	IEC 60068-2-64, 0.5Grms, Random 5~500 Hz, 40 Mins/Axis	MIL-STD-810F Method 514.6
277 x 67 x 190 mm	143 x 195 x 67.7 mm	220 x 46 x 172 mm	193 x 118 x 230 mm
Aluminum + SGCC	Aluminum + SGCC	SGCC	Aluminum + SUS
2.7 kg	2.8 kg	1.1 kg	9.9 kg
VESA, Wallmount	Rack, VESA, DIN-Rail, Wallmount	-	Wallmount
WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro	WES 7 E/Win 7 Pro FES/WE 8.1 Industry Pro
Kernel 2.4.18 or later	Kernel 2.6.2x	Kernel 3.x	Kernel 2.6.2x
CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
LEC-7920	LEC-7480-711A/LEC-7480-311A	LEC-7388S-5A/3A/CA	REC-2740

Accessories

3G Modules

0TAW0ZU200Z01	ublox ZU200
	The ublox ZU200 PCI Express Mini Card with Integrated SIM holder slot offers high performance to the user on 3.75G with 6-band WCDMA (UMTS) and quad-band GSM/GPRS/EDGE networks. - Coverage: 800/850/900/1700/1900/2100 MHz - Interface: PCI Express - Simple integration of u-blox GPS and A-GPS - Form Factor: Mini PCIe Card Full Size
0TAW0ZU202Z01	**ublox ZU202**
	The ublox Wireless ZU202 PCI Express Mini Card with Integrated SIM holder slot offers high performance to the user on 3.75G and Quad-band GSM/GPRS/EDGE/UMTS/HSPA/WCDMA(UMTS) networks. - Coverage: 800/850/900/1700/1900/2100 MHz - Interface: PCI Express - Form Factor: Mini PCIe Card Full Size

Wi-Fi Modules

0TAW000026000	WPEA-152GN(BT)
	Single band 802.11b/g/n Half Mini Card, Atheros AR9485 + AR3012, 1T1R with HMCE-101 (Mini PCIe half card extender) - Up to 150Mbps data rate
0TAW000022000	**WPEA-251N(BT)**
	Dual band 802.11a/b/g/n Half Mini Card, Atheros AR9462, 2T2R with HMCE-101 (Mini PCIe half card extender) - Up to 300Mbps data rate
0TAWWPER12Z01	**WPEA-121N**
	Dual band 802.11a/b/g/n Half Mini Card, Atheros AR9382, 2T2R with HMCE-101 (Mini PCIe half card extender) - Up to 300Mbps data rate
0TAW000027000	**WPEA-252NI**
	Dual band 802.11a/b/g/n Indusdrial-Grade Mini Card, Qualcomm Atheros AR9592-AR1B, 2T2R - Up to 300Mbps data rate - -40 ~ 80C
0TAW000025000	**WPEA-352ACN**
	Dual band 802.11ac/b/g/n Mini Card, Qualcomm Atheros QCA9880-BR4A, 3T3R - Up to 1.3Gbps data rate

External Antennas

0TZW000000039	Wi-Fi External Antenna
	For both Mini-PCIe and Mini-PCI interface Wi-Fi modules: External Antenna: RP-SMA FeMale Body FeMale Inner Contact, Passive
TBD	**Wi-Fi External Antenna**
	WiFi EXTERNA ANTENNA, RP-SMA Female Body Female Inner Contact, Passive, 5dB
TBD	**Wi-Fi External Antenna**
	WiFi EXTERNA ANTENNA, dual band, RP-SMA Female Body Female Inner Contact, Passive, 5dB
0TZW000000072	**3G External Antenna**
	RP-SMA FeMale Body Male Inner Contact, Passive
0TZW000000108	**GSM External Antenna (Length: 300 cm)**
	SMA FeMale Body Male Inner Contact, IP67 Rated, Active

Wallmount

098W000003000	Wallmount Bracket 3 (143 x 27 mm)
	Compatible Lanner Products: LEC-2050, LEC-2010, LEC-2110

098W000004000	Wallmount Bracket 4 (136 x 42 mm)
	Compatible Lanner Products: LEC-2220P, LEC-2220P2, LEC-2222, LEC-2223, LEC-7920, LEC-2270, LEC-2270P2, LEC-2280, LEC-2280P2, LEC-7950, LEC-2136, LEC-7220, LEC-7070, LEC-7230, LEC-7105, LEC-7106, LEC-7100, LEC-7110, LEC-7480, LEC-7230M, LEC-7330, LEC-7331, LEC-2281, LEC-2284, LEC-7233, LEC-2580, LEC-2137

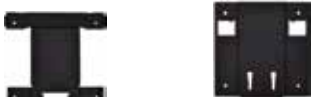| 098W000005000	Wallmount Bracket 5 (135.4 x 44 mm)
	Compatible Lanner Products: LEC-2250, LEC-2530

Rackmount

098W000006000	Rackmount Bracket (483x 195 x 44 mm)
	Compatible Lanner Products: LEC-2010, LEC-2050, LEC-2055, LEC-2026, LEC-2136, LEC-2250, LEC-7000, LEC-7020D, LEC-7050, LEC-7100, LEC-7105, LEC-7110, LEC-7070, LEC-7106, LEC-7230, LEC-2530, LEC-2580

VESA Mount

098W000009000	VESA Mount Bracket (130 x 132 mm)
PC Side Bracket Display Side Bracket	Compatible Lanner Products: LEC-2010, LEC-2050, LEC-2055, LEC-2026, LEC-2110, LEC-2126, LEC-2136, LEC-2250, LEC-7000, LEC-7020D, LEC-7050 LEC-7100, LEC-7105, LEC-7110, LEC-7070, LEC-7900, LEC-7106, LEC-7230, LEC-2530, LEC-2580

DIN-Rail Mount

098W000007000	DIN-Rail Mount Bracket
	Compatible Lanner Products: LEC-2010, LEC-2050, LEC-2055, LEC-2026, LEC-2110, LEC-2126, LEC-2136, LEC-2250, LEC-7020, LEC-7050, LEC-7100, LEC-7105, LEC-7110, LEC-7070

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

Slide the monitor into the DIN rail Mounting Track.

098W000008000	DIN-Rail Mount Accessory kit
	Compatible Models: Wallmount Bracket 3 & 4 All wallmount kits have these three holes reserved for a DIN-Rail mount.

Substation Automation

SCADA Industrial Communication

SCADA (Supervisory Control And Data Acquisition) plays a crucial role in remote control of industrial and energy infrastructures. Through data acquisition facilities, SCADA systems are informed of the status of remote infrastructures and deliver alerts to owners through communication networks with remote monitoring display or recorded images. Today, SCADA is a widely adopted ICS (Industrial Control Systems) type of communication channel controllers in utility generating infrastructures such as power substations, hydro, nuclear plants and solar grids.

The LEC-3231 is an IEC 61850-3 and IEEE 1613 certified data collection server designed for power SCADA and power communication gateway. The 2U rackmount communication appliance offers rich, customizable I/O interface with combinations of multiple GbE LAN/SFP fiber ports, making it easy to configure to meet specific needs.

Target Applications:
- Power SCADA System Communication Gateway
- Automation Platform for Substation
- IED Communication Gateway

LEC-3231
- Fanless Rack Mounting Box PC for Power Substation
- IEC 61850-3 and IEEE-1613 Compliance
- Intel® Celeron® 847E, Core™ i3-3217UE or i7-3517UE CPU
- Up to 10/18 Isolated Serial Ports and 4/8 Magnetic Isolated
  LAN ports
- Redundant Power Supply Options : 36~48Vdc or
  [90~246Vac and 100-300Vdc]

Operating Center
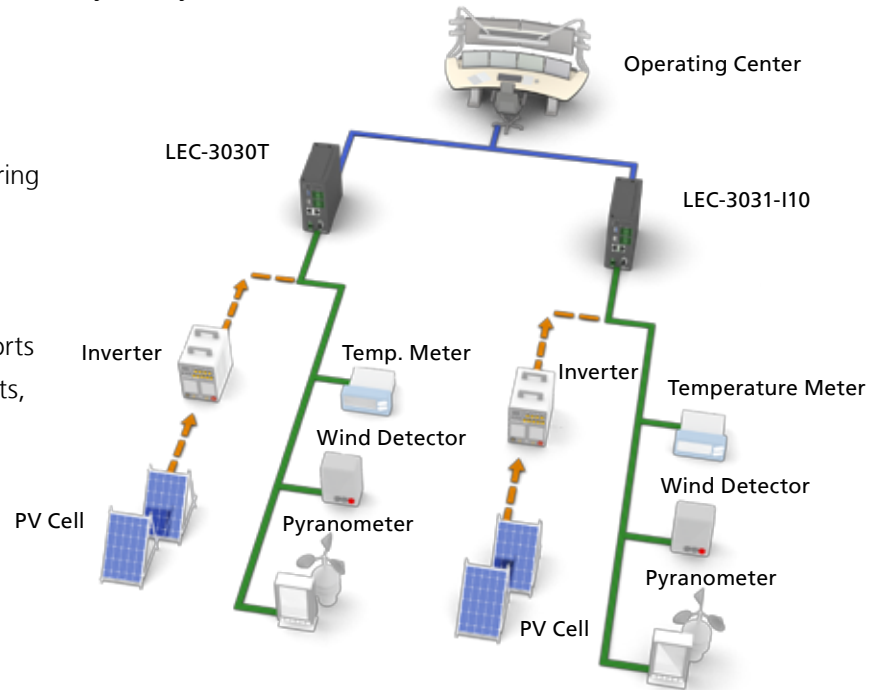
LEC-3231

IED

RTU
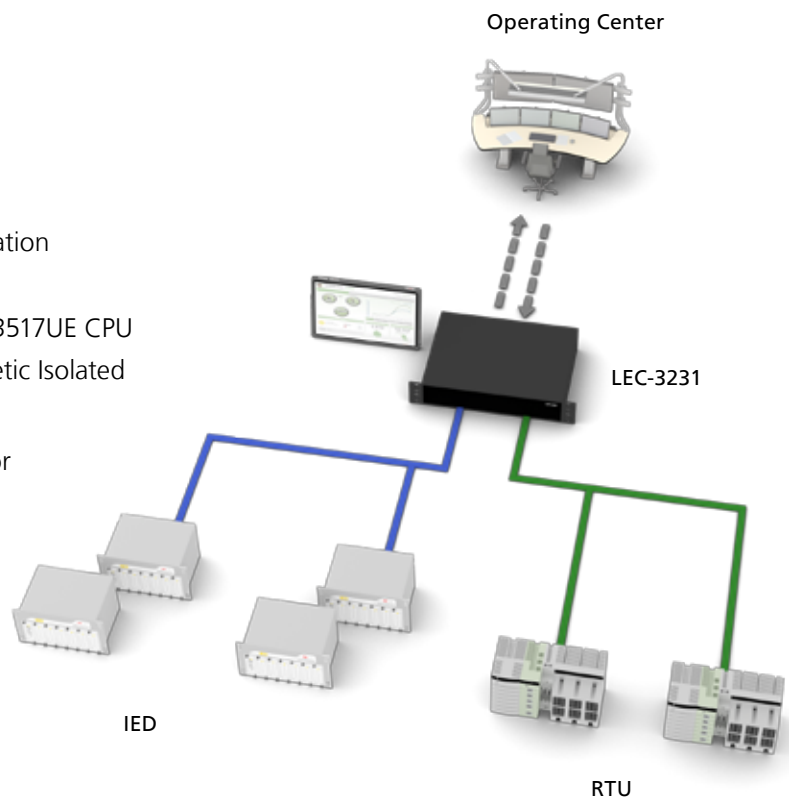
Energy Monitoring

Renewable Energy Monitoring

The LEC-3031-I10 is an integrated communication platform for solar inverter substations. Equipped with multiple EMI-protected and isolated serial ports, the DIN-Rail industrial PC monitors and analyzes data that includes daily sunlight, power generation efficiency, array disconnect statistics and other metered information.

LEC-3031-I10

- Fanless Box PC for Energy Monitoring
- Intel® Atom E3825 CPU
- Wide Operating Temperature
- 4/6/8 x RS-232/422/485,
  I Series: 4 or 10 x isolated COM Ports
- 2/4 Isolated GbE LAN, 4x USB Ports,
  VGA Port

Operating Center
LEC-3030T
LEC-3031-I10
Inverter
Temp. Meter
Inverter
Temperature Meter
Wind Detector
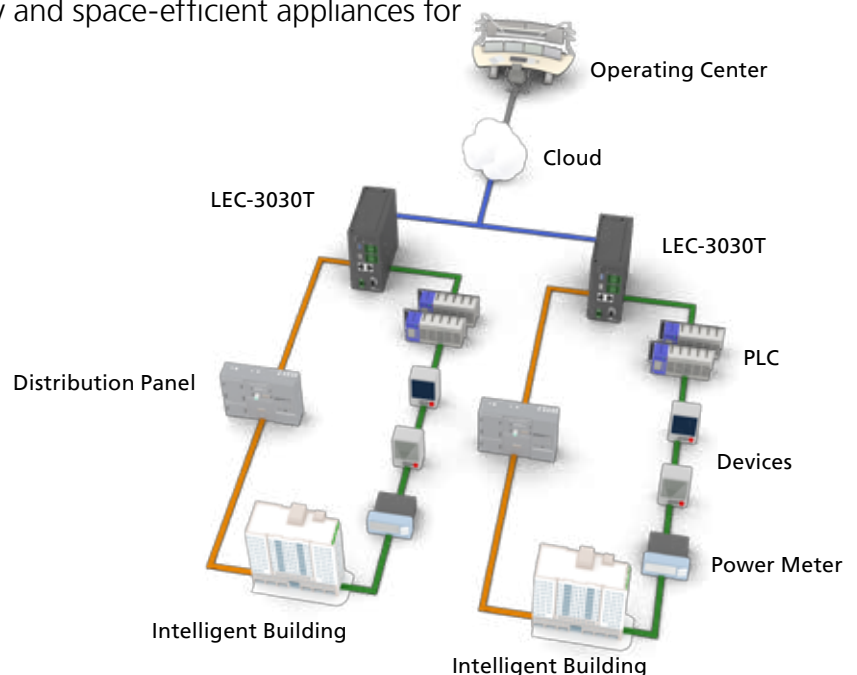Wind Detector
PV Cell
Pyranometer
Pyranometer
PV Cell

Building Automation

The LEC-3030 Series are ideal for building energy monitoring. This ultra-compact fanless industrial computer features 2 LAN ports with magnetic isolation and 2 isolated serial ports with ESD/surge protections. The compact, DIN rail form factor, front facing I/O ports and the Intel CPU N2807/E3815 together make the LEC-3030 Series energy and space-efficient appliances for energy monitoring applications.

LEC-3030T

- Wide Temperature Fanless DIN Rail PC
- Intel® Atom E3815 CPU
- 2 x Isolated RS-232/422/485, 4 x DI/DO
- 2 x Isolated GbE LAN, 1x USB 3.0, 1x
  USB 2.0, VGA Port
- DIN Rail or Wall Mount

Operating Center
Cloud
LEC-3030T
LEC-3030T
PLC
Distribution Panel
Devices
Power Meter
Intelligent Building
Intelligent Building

Substation Gateways

Model Name		LEC-3030	LEC-3031	LEC-3230	LEC-3231
Processor System	CPU	Intel® Celeron® N2807, Atom E3815	Intel® Atom E3825	Intel® Celeron 847E, Core™ i3-3217UE/ i7-3517UE	Intel® Celeron® 847E, Core i3-3217UE, Core i7 3517UE
	Frequency	1.58Ghz or 1.46Ghz	1.33Ghz	1.1Ghz/1.6Ghz/1.7Ghz	1.1Ghz/1.6Ghz/1.7Ghz
	Core Number	2C or 1C	2C	2C	2C
	BIOS	AMI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
	Chipset	SoC	SOC	Intel HM65	Intel® HM65
Fanless		Yes	Yes	Yes	Yes
Memory	Technology	DDR3L 1066/1333MHz	DDR3L 1066MHz	DDR3 1333/1600 MHz	DDR3 1333/1600 MHz
	Max. Capacity	4GB	8GB	8GB	8GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM
Graphic	Controller	Intel® HD Graphics	Intel® HD Graphics	Intel HD Graphics/4000/4000	Intel HD Graphics/4000/4000
	VGA	1x VGA	1x VGA	1x VGA	1x VGA
	DVI	-	-	-	-
	HDMI	-	-	-	-
Ethernet	Controller	Intel® i210-IT	Intel® i210-IT	Intel® 82583V	Intel® 82583V
	Speed	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000Mbps	10/100/1000Mbps
	Interface	2 or 4x RJ45	2 or 4x RJ45	8x RJ45	8x RJ45
	Magnetic Isolation Protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection	1.5KV magnetic isolation protection
Storage	Type	-	m-SATA mini	PATA	PATA
	Installation	-	m-SATA mini connector	CF I/II Socket	CF I/II Socket
	Type	SATA II	SATA II	SATA II	SATA II
	Installation	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay
I/O	Serial Port	2x Isolation RS-232/RS422/RS485 + 1 x RS-232 pin header	LEC-3031-A4/A6/A8: 4/6/8 x RS232/422/485 LEC-3031-I4: 4 isolated RS-485 LEC-3031-I10: 8 isolated RS485, 2 x isolated RS-232/485 LEC-3031-DI4: 4 isolated RS-232/485, 1xRS-232	2 x DB9 & 2x2x10 pin terminal block for 10x RS-232/422/485	2 x DB9 & 2x2x10 pin terminal block for 10x RS-232/422/485
	ESD Protection	15KV ESD protection	15KV ESD protection	15KV for all signals	15KV for all signals
	Isolation Protection	2KV Digital Isolation	2KV Digital Isolation	2KV for Digital Isolation	2KV for Digital Isolation
	Digital I/O	1x 2x5 Pin terminal block for 4x DI/DO	LEC-3031-DI4: 4x DI/ 4x DO (without isolation)	-	-
	USB 2.0	1x Type A, 1 x internal pin header	1 or 3 x Type A	2x Type A, 1x internal Type A, 3x internal pin header	2x Type A, 1x internal Type A, 3x internal pin header
	USB 3.0	1x Type A	1x Type A	-	-
	Power On/Off/Reset Button	- / 1x Reset	- / 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
	LED	PWR, Storage, RX/TX	PWR, Storage, RX/TX	Run, PWR, HDD	PWR, Storage, RX/TX
Expansion Interface	Mini-PCIe / PCIe	-	-	PCIe expansion slot (By request)	PCIe expansion slot (By request)
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	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
Power	Power Supply Voltage	12-36 Vdc	12-36 Vdc	100-240Vac	36-48Vdc or 90-264Vac / 100-300 Vdc
	Redundant PSU Support	-	-	-	Yes
	Connector	Phoenix contact 2-pin connector with lock	Phoenix contact 2-pin connector with lock	DC Jack with Lock	3-pin connector
	Power Consumption (Idle)	TBD	TBD	21.5W	TBD
	Power Consumption (Full Load)	TBD	TBD	30W	TBD
Environment	Operating Temperature	LEC-3030A: -20~55°C LEC-3030T:-40~70°C	-40°C~70°C	-20~55°C	-40~70°C
	Storage Temperature	-40~85°C (-40~185°F)	-40°C~80°C	-40~80°C	-40~85°C
	Relative Humidity	5% - 95% non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
Mechanical	Dimension (W x H x D)	LEC-3030A: 52x 130x127mm LEC-3030T 57.5x 130 x 127mm	69x169.5x127 mm (2.71"x6.67"x 5.00")	440 x 89 x 351.5 mm (17.32"x3.50"x 13.84")	440x88x301.2 mm (17.32"x3.46"x 11.85")
	Construction	LEC-3030A: Steel, LEC-3030T: Aluminum + Steel	Aluminum + Steel	Aluminum + SGCC	Aluminum + SGCC
	Weight	1Kg	1.2Kg	5.8Kg	6Kg
	Mounting	DIN rail, Wallmount	DIN rail, Wallmount	Rackmount	Rackmount
Driver Support	Microsoft Windows	Windows 7, Windows 7 Embedded	Windows 7, Windows 7 Embedded	Windows 7, Windows 7 Embedded	Windows 7, Windows 7 Embedded
	Linux	Kernel 2.6	Kernel 2.6	Kernel 2.6	Kernel 2.6
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Compliance		RoHS	RoHS	RoHS, , IEC 61850-3, IEEE-1613	RoHS, IEC 61850-3, IEEE-1613
Ordering Information		LEC-3030A / LEC-3030T	LEC-3031-A4 / LEC- 3031-A6 / LEC-3031-A8 / LEC-3031-I4 / LEC-3031-I10 / LEC-3031-DI4	LEC-3230B/LEC-3230C/LEC-3230D	LEC-3231B/LEC-3231C/LEC-3231D: without PSU LEK-3231-PW1: 36~48 Vdc LEK-3231-PW2: 90~264 Vac/100-300 Vdc

Application-tailored Platform

Lanner provides Configure-To-Order Service to its customers, allowing them to configure their LAN modules or COM port modules to meet their individual needs. The following are examples of possible custom configurations:

- 4 x 10/100/1000 RJ45 GbE module
- 8 x 10/100/1000Mbps RJ45 GbE module
- 2 x RJ45 + 2x fiber GbE module
- 8 Isolated serial port module

Note: Please contact Lanner sales for this service.

Part Number	Description	Features	Photo
LEK-2G2F	4x Gigabit Ethernet module	• Intel i210T/i210IS controller • 2 x RJ45, 2 x SFP • Support Windows 7/Linux driver	
LEK-EN1	4x Gigabit Ethernet module	• Intel 82583V controller • 4 x RJ45 • Support Windows/Linux driver	
LEK-8GE	8x Gigabit Ethernet module	• Intel 82583V controller • 8 x RJ45 • Support Windows/Linux driver	
LEK-2GE2MM	Ethernet module w/ Gigabit and 100M multi mode optic fiber	• Intel 82583V / VIA VT6105M controller • 2 x RJ45, 2 x multi-mode ST • Support Windows/Linux driver	
LEK-2GE2MMA	Ethernet module w/ Gigabit and 100M single mode optic fiber	• Intel 82583V / VIA VT6105M controller • 2 x RJ45, 2 x single-mode ST • Support Windows/Linux driver	
LEK-COM8A	Isolated RS-232/422/485 module	• EXAR 17B358 controller • 8 x RS-232/422/485 • Support Windows/Linux driver	

Highly Integrated Industrial Communication Platform

Hybrid Industrial Communication Device (Hybrid ICD)

Lanner's LEC-3480 is the first product built with Hybrid ICD architecture, which defines the next-generation performance and multi-operability for industrial communication platform. There are 6 computing blades in one 4U rackmount form factor, capable of flexible configurations, high scalability and redundant power supplies. LEC-3480 is a successful integration of Intel® x86 and RISC architectures, supporting up to 6 processors.

Multi-platform

Multi-processor

Multi-I/O

Advantages

- IEC 61850-3 and IEEE 1613 Compliance
- Hybrid Architecture: x86 and RISC-based Computing Blade
- Support up to 6 Processors
- Various Connectivity Options
- Redundant Power Supply

Hybrid ICD Series		LEC-3480	LEC-3480-16CM	LEC-3430	LEC-3430-16CM
Processor Options		Freescale™ P1020	Freescale™ P1020	Intel® N2807	Intel® N2807
Chipset		N/A	N/A	N/A	N/A
BIOS		N/A	N/A	AMI SPI Flash BIOS	AMI SPI Flash BIOS
System Memory	Sockets	N/A	N/A	1 x 204-pin DDR3 SO-DIMM	1 x 204-pin DDR3 SO-DIMM
	Technology	Onboard DDR3	Onboard DDR3	DDR3 SO-DIMM x1	DDR3 SO-DIMM x1
	Max. Capacity	1 GB	1 GB	8 GB	8 GB
USB		2 x USB 2.0 Type A connector	2 x USB 2.0 Type A connector	1 x USB 2.0, 1 x USB 3.0 Type A connector	1 x USB 2.0, 1 x USB 3.0 Type A connector
Storage		1 x SATA	1 x SATA	1 x SATA, 1 x CF	1 x SATA, 1 x CF
OS Support		Linux 2.6	Linux 2.6	Linux 2.6	Linux 2.6
Networking	LAN	8 x 10/100/1000 RJ45 connector with VLAN support	8 x 10/100/1000 RJ45 connector with VLAN support	8 x 10/100/1000 RJ45 connector legal IP and dedicated MAC	8 x 10/100/1000 RJ45 connector legal IP and dedicated MAC
	Magnetic Isolation Protection	1.5 KV built-in	1.5 KV built-in	1.5 KV built-in	1.5 KV built-in
Serial Interface	Serial Standard	None	16 x RS485 with terminal block connector	None	16 x RS485 with terminal block connector
	ESD Protection	None	15 KV for all signals	15 KV for all signals	15 KV for all signals
	Isolation Protection	None	Digital isolation protection	None	Digital isolation protection
Display	Display Interface	None	None	DB15 x1 for VGA (2048x1536)	DB15 x1 for VGA (2048x1536)
Weight		8 kg	8 kg	8 Kg	8 Kg
Dimensions (W x H x D)		436.8 x 276 x 177 mm	436.8 x 276 x 177 mm	440 x 44.5 x 301 mm	440 x 44.5 x 301 mm
Environment	Operating Temperature	-20~55°C (-40~70°C)	-20~55°C (-40~70°C)	-20~55°C	-20~55°C
	Storage Temperature	-40~85°C	-40~85°C	-40~85°C	-40~85°C
Power	Input Voltage	DC +12V (Internal Bus)	DC +12V (Internal Bus)	DC +12V (Internal Bus)	DC +12V (Internal Bus)
Reliability	Alter tool	Built-in buzzer and RTC (real-time clock) with lithium battery backup	Built-in buzzer and RTC (real-time clock) with lithium battery backup	Built-in buzzer and RTC (real-time clock) with battery lithium backup	Built-in buzzer and RTC (real-time clock) with battery lithium backup
	Automatic Reboot Trigger	Watchdog Timer 1~255 level	Watchdog Timer 1~255 level	Watchdog Timer 1~255 level	Watchdog Timer 1~255 level
Ordering Information		LEC-3480	LEC-3480-16CM	LEC-3430	LEC-3430-16CM

ICS Cyber Security

ICS structures are implemented in segregated environments to control and monitor critical infrastructures. In recent years, we have heard various incidents of critical infrastructures such as nuclear plants being breached by malicious cyber attacks. One of the most discussed is the Stuxnet which devastated the computing system of Iran's nuclear plant. There are reports indicating that hackers usually attack the weak sides of DCS, PLC and HMI. Therefore, it is necessary to implement firewalls designed with endurance in harsh environments.

The LEC-6032 Series are DIN-Rail cyber security appliances designed to cope with challenging conditions and extreme temperatures. Certified for Class 1 Division 2 hazardous environments, the LEC-6032 Series are ideal gateway platforms for industrial firewall/UTM to provide white-listing function, alerting the system administrator when abnormal network events occur.

Target Applications:
- Industrial UTM
- Security Gateway
- Industrial Firewall
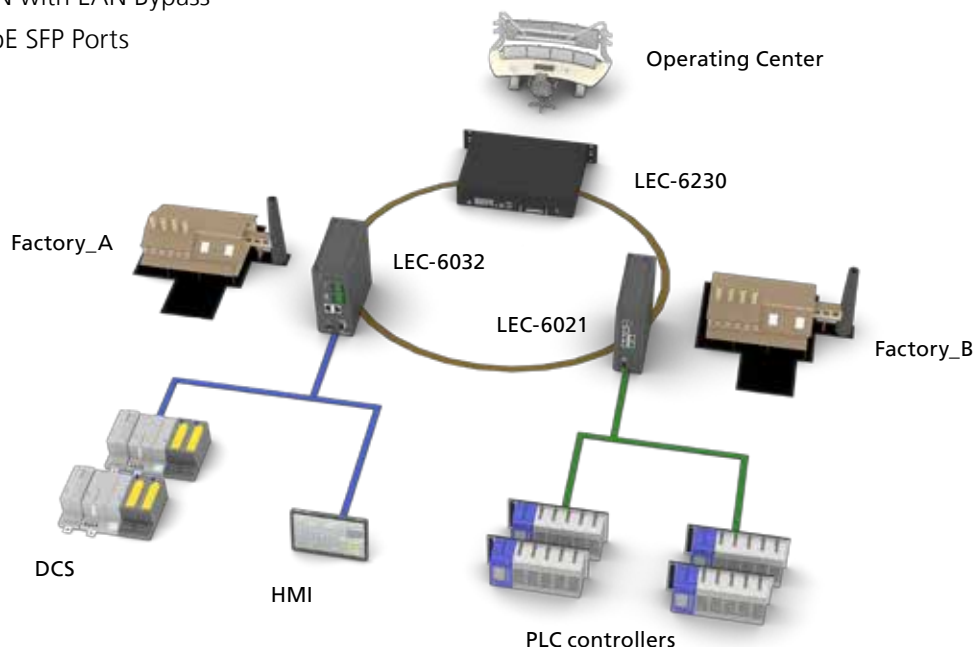- SCADA Network Security Appliance

LEC-6021
- Fanless DIN Rail Box PC
- Intel® Atom™ N2600 SoC with NM10
- 1 x Serial Ports with ESD and Surge Protection
- 5 x GbE LAN with LAN Bypass
- 2 x Fiber GbE SFP Ports

LEC-6032
- Fanless DIN Rail Box PC
- Intel® Atom™ E3845 SoC CPU
- 1 x Serial Ports with ESD and Surge Protection
- 3 or 5 x GbE LAN with LAN Bypass
- 2 or 4 x Fiber GbE SFP Ports

LEC-6230
- Intel® Core™ i7-3517UE CPU with HM65 Chipset
- 2 x RS-232 Serial Ports with ESD and Surge Protection
- 8 x GbE LAN and 4 x Fiber GbE SFP Ports

Operating Center

LEC-6230

Factory_A

LEC-6032

LEC-6021

Factory_B

DCS

HMI

PLC controllers

Industrial Cyber Security Appliances

Model Name		LEC-6020	LEC-6021A	LEC-6030
Processor System	CPU	Intel® Atom™ N2600	Intel® Atom™ N2600	Intel® Atom™ E3845
	Frequency	1.6Ghz	1.6Ghz	1.91 Ghz
	Core Number	2C	2C	4C
	BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
	Chipset	Intel® NM10	Intel® NM10	SoC
Fanless		Yes	Yes	Yes
Memory	Technology	Dual Channel DDR3 1333/1600 MHz	Dual Channel DDR3 1333/1666 MHz	Dual Channel DDR3L 1067 MHz
	Max. Capacity	2GB	2GB	4GB
	Socket	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM
Graphic	Controller	Intel Integrated	Intel Integrated	Intel® HD Graphics
	VGA	Internal pin header	Internal pin header	Internal pin header
Ethernet	Controller	6020A: Intel® 82574L x 3 6020B: Intel® 82574L x 5 6020C/D: Intel® 82574Lx5 6020C: Intel® 82580DB x 2	Intel® i210 x 7	Intel® i210-IT / 82574L
	Speed	10/100/1000 Mbps	10/100/1000Mbps	10/100/1000Mbps
	Interface	6020A: 3x GbE RJ45, 1 pair LAN Bypass 6020B: 5x GbE RJ45, 2 pairs LAN Bypass 6020C/D: 5x GbE RJ45, 1 pair LAN Bypass 6020C: with 2x SFP Fiber ports	5x RJ4, 1 pair LAN Bypass 2x GbE SFP ports	6030B: 5x GbE RJ45, 1 pairs LAN Bypass 6030C/D: 5x GbE RJ45 6030C: with 2x SFP Fiber ports 6030E: 2x GbE RJ-45, 4x GbE PoE
	Magnetic Isolation Protection	1.5KV build-in	1.5KV build-in	1.5KV build-in
Storage	Type	CompactFlash socket	CompactFlash socket	-
	Installation	Type I/II x1	Type I/II x1	-
	Type	SATA II	SATA II	SATA II
	Installation	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay
I/O	Serial Port	6020A: 2x 10 pin terminal block for 4x RS-232/422/485, 1x internal header (RS232) 6020B: 1x internal header for RS232 6020C/D: 1x COM RS-232	1x DB9 for RS-232, Internal pin-header x 1	6030B: 1x internal header for RS232 6030C/D: 1x COM RS-232
	ESD Protection	15KV for all signals	15KV for all signals	15KV for all signals
	Isolation Protection	-	Digital isolation protection	-
	Digital I/O	-	-	-
	USB 2.0	6020A: 4x Type A,6020B/C/D: 2x Type A, 2x internal pin-connector	2x Type A	1x Type A
	USB 3.0	-	-	1x Type A
	Power On/Off/Reset Button	- / 1x Reset	- / 1x Reset	- / 1x Reset
	LED	All: PWR, Storage, Run(User defined), 3x User deined 6020A: 4xRx, 4xTx 6020C: 2x SPF	PWR, Storage, Run(User defined), 2 x RX/TX, 5 x LAN, 2 x SFP	Storage,PWR,L1~L5,F1~F2,C1~C2
Expansion Interface	Mini-PCIe / PCIe	-	1x mini-PCIe	-
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	+12-48Vdc	+12-36Vdc
	Connector	DC Jack With Lock	DC Jack With Lock	2-Pin Terminal Block
	Power Consumption (Idle)	TBD	TBD	TBD
	Power Consumption (Full Load)	TBD	TBD	TBD
Environment	Operating Temperature	-40~70°C (-40-158°F)	-40~75°C (-40~176°F)	-40~70°C (-40-158°F)
	Storage Temperature	-40~85°C	-40~85°C	-40~85°C
	Relative Humidity	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
Mechanical	Dimension (W x H x D)	65x146x127 mm (2.56"x5.75"x 5.00")	53.5x186x160 mm (2.11"x7.32"x 6.30")	65x146x127 mm (2.56"x5.75"x 5.00")
	Construction	Aluminum	Aluminum + SGCC	Aluminum + SGCC
	Weight	1Kg	2,2Kg	1Kg
	Mounting	DIN rail, Wallmount	DIN rail, Wallmount	DIN rail, Wallmount
Driver Support	Microsoft Windows	Windows 7, Windows 7 Embedded	Windows 7 Embedded	Windows 7, Windows 7 Embedded
	Linux	Kernel 2.6	Kernel 2.6	Kernel 2.6
Certification	EMC	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
Compliance		RoHS	RoHS	RoHS
Ordering Information		LEC-6020-A/B/C/D	LEC-6021A	LEC-6030B/LEC-6030C/LEC-6030D/LEC-6030E

LEC-6032 NEW	LEC-6040H/M	LEC-6230	LEC-6231 NEW
Intel® Atom™ E3845	LEC-6040H: Intel® Core™ i5-4402E LEC-6040M: Intel® Core™ i3-4102E	Intel® Core™ i7-3517UE	Intel® Core™ i7-3517UE
1.91 Ghz	2.7Ghz / 1.6Ghz	1.7Ghz	1.7Ghz
4C	4C	2C	2C
AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS	AMI SPI Flash BIOS
SoC	Intel QM87	Intel HM65	Intel HM65
Yes	Yes	Yes	Yes
Dual Channel DDR3L 1067 MHz	Dual Channel DDR3L 1067 MHz	DDR3 1333/1600 MHz	DDR3 1333/1600 MHz
4GB	8GB	8GB	8GB
1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM	1x 204-pin SODIMM
Intel® HD Graphics	Intel® HD Graphics 4600	Intel® HD Graphics 4000	Intel® HD Graphics 4000
Internal pin header	Internal pin header	1x DB15	1x DB15
Intel® i210-IT/ Intel® i210-IS	Intel® I210	Intel® I210	Intel® I210
10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
LEC-6032B: 5 x GbE RJ-45, 2 pairs LAN Bypass LEC-6032C: 5 x GbE RJ-45, 1 pair LAN Bypass, and 2 x SFP GbE ports LEC-6032D: 5 x GbE RJ-45, 1 pair LAN Bypass LEC-6032F: 3 x GbE RJ-45, 1 pair LAN Bypass, and 4 x SFP GbE ports	B1: 4x GbE Ports B2: 6x GbE Ports, 2x SFP ports B3: 8x GbE ports	8x GbE Ports RJ-45 4x Fiber GbE SFP Ports	8x GbE Ports RJ-45 4x Fiber GbE SFP Ports
1.5KV build-in	1.5KV build-in	1.5KV build-in	1.5KV build-in
-	mSATA mini	CompactFlash socket	CompactFlash socket
-	mSATA mini connector	Type I/II x1	Type I/II x1
SATA II	SATA II	SATA II	SATA II
1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay	1x 2.5" HDD/SSD Drive Bay
1 x RS-232 pin header 1 x DB9 with RS-232 (enabled by connecting the required cable with the pin header)	1x DB9 support RS-232, (3-pin RxD, TxD and GND), 50bps-115.2Kbps	2x DB9 for RS-232/422/485	2x DB9 for RS-232/422/485
15KV for all signals	15KV for all signals	15KV for all signals	15KV for all signals
-	Digital isolation protection	Digital isolation protection	Digital isolation protection
-	-	-	-
1x Type A	1x Type A	2x Type A, 1 internal Type A, 3x internal pin header	2x Type A, 1 internal Type A, 3x internal pin header
1x Type A	2x Type A	-	-
- / 1x Reset	- / 1x Reset	1x Power On/Off, 1x Reset	1x Power On/Off, 1x Reset
Storage, RUN, PWR, LAN LEC-6032 C/F: SFP	1x PWR 1x Storage 16x double stack LED for Ethernet 1 x COM 4x double stack LED for Programmable	PWR, Storage, Run(User defined), 8 x ACT/Link, 10 x Rx/Tx , 8 xPIO	PWR, Storage, Run(User defined), 8 x ACT/Link, 10 x Rx/Tx , 8 xPIO
-	1x Full-sized mini PCIe and 1x Half-Sizd mini-PCIe		
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	Watchdog Timer 1~255 Level Time Interval System Reset, Software Programmable
+12-36Vdc	+12Vdc	100-240Vac	36-48Vdc or 90-264Vac / 100-300 Vdc, RPS support
6-pin Phoenix Contact Connector	2-pin Phonex Contact Connector	-	3-pin connector
TBD	17.79W	TBD	TBD
TBD	26.84W	TBD	TBD
-40~75°C (-40~176°F)	-20~55°C (-4-131°F)	-20~55°C (-4-131°F)	-20~55°C (-4-131°F)
-40~85°C	-40~80°C	-40~80°C	-40~85°C
5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing	5%~95%, Non-condensing
78x146x127 mm (3.07"x5.75"x 5.00")	68x210x190 mm (2.68"x8.27"x 7.84")	440x89x351.5 mm (17.32"x3.50"x 13.84")	440x89x351.5 mm (17.32"x3.50"x 13.84")
Aluminum	Steel + Aluminum	Steel + Aluminum	Steel + Aluminum
1Kg	2.5Kg	5.8Kg	5.8Kg
DIN rail, Wallmount	DIN rail, Wallmount	Rackmount	Rackmount
Windows 7, Windows 7 Embedded	Windows 7, Windows 7 Embedded	Windows 7, Windows 7 Embedded	Windows 7, Windows 7 Embedded
Kernel 2.6	Kernel 2.6	Kernel 2.6	Kernel 2.6
CE,FCC Class A	CE,FCC Class A	CE,FCC Class A	CE,FCC Class A
RoHS, C1D2	RoHS, IEC 61850-3, IEEE 1613	RoHS, IEC 61850-3, IEEE 1613	RoHS, IEC 61850-3, IEEE 1613
LEC-6032B/LEC-6032C/LEC-6032D/LEC-6032F	LEC-6040H-B1/LEC-6040H-B2/LEC-6040H-B3 LEC-6040M-B1/LEC-6040M-B2/LEC-6040M-B3	LEC-6230	LEC-6231

Enabling Building Automation with Energy Monitoring System

Requirements

In order to implement the aforementioned power conservation regulations, one must first find out where and how the energy is being consumed, and by whom. A municipal government in China set out to enforce the local power regulations by monitoring the city's office buildings and residential complexes, both widely believed to be responsible for the most excessive electricity usage in the said city.
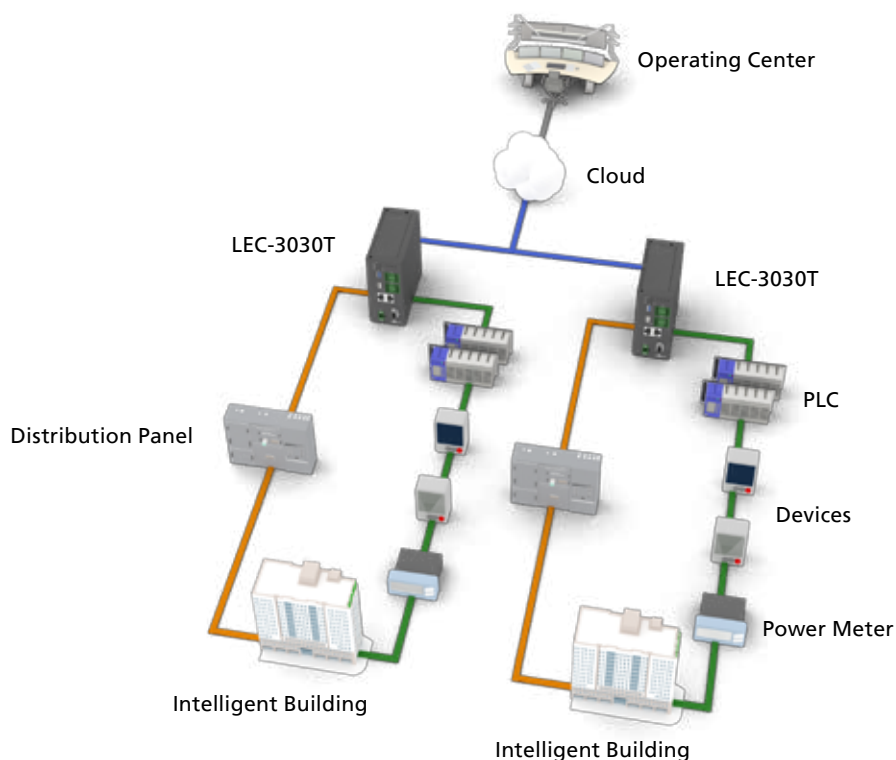
To effectively collect electricity usage from thousands of electricity meters in these buildings, the city administrators needed an intelligent electricity monitoring system for collecting and storing data from various terminal devices, as well as uploading collected data back to a datacenter. The hardware for this intelligent system must meet the following requirements:

The Solution

Designed as a robust platform for power communication applications, LEC-3030T was eventually selected for setting up this energy monitoring system. This particular fanless industrial computer features 2 LAN ports with magnetic isolation and up to 2 serial ports with ESD/surge protections, offering great compatibility for 3rd party device integration and high reliability when operating in high voltage environments. The compact, DIN rail form factor, front facing I/O ports and the Intel Atom CPU E3815 together make the LEC-3030T an energy and space-efficient appliance, one that outperforms its counterparts.

Once implemented, power consumption in lighting system, water /gas meters and air-conditioning/heating systems can be monitored so that excessive usage can be curtailed and greater energy efficiency can be achieved.

Operating Center

Cloud

LEC-3030T

LEC-3030T

PLC

Distribution Panel

Devices

Power Meter

Intelligent Building

Intelligent Building

Reinforcing Control and Prevention Against Cyber Threats for Energy Sectors

Requirements

Since the trend of IoT (Internet of Things), energy sectors all over the world have been frequently the main targets for deliberate malware as consequences of planned attacks can highly devastate reliability, serviceability and public trust. One of the recent incidents was the power cut during Christmas season in Ukraine, 2015, followed by a series of cyber attacks to local energy companies. Large parts of the state were under power black-out. This incident revealed that ICS systems today are practically vulnerable to deliberate attacks.

The main reason of such vulnerability is the adoption of mainstream hardware and standard operating systems. These IT equipments are implemented for increased automation; however, they are so common that professional attackers are very familiar with their weakness. In addition, most of the security measures for ICS (Industrial Control System) and SCADA today are still traditional and old-fashioned against modern attacks because these were built before advanced malwares. A practical solution is to implement a hardware firewall/UTM with the following requirements to conduct security measures:

- Performance and Power Balanced Processor

- Multiple Ethernet Connectivity

- ESD and Surge Protection

- Wide Operating Temperature

Operating Center

LEC-6230

Factory_A

LEC-6032

LEC-6021

Factory_B

DCS

HMI

PLC controllers
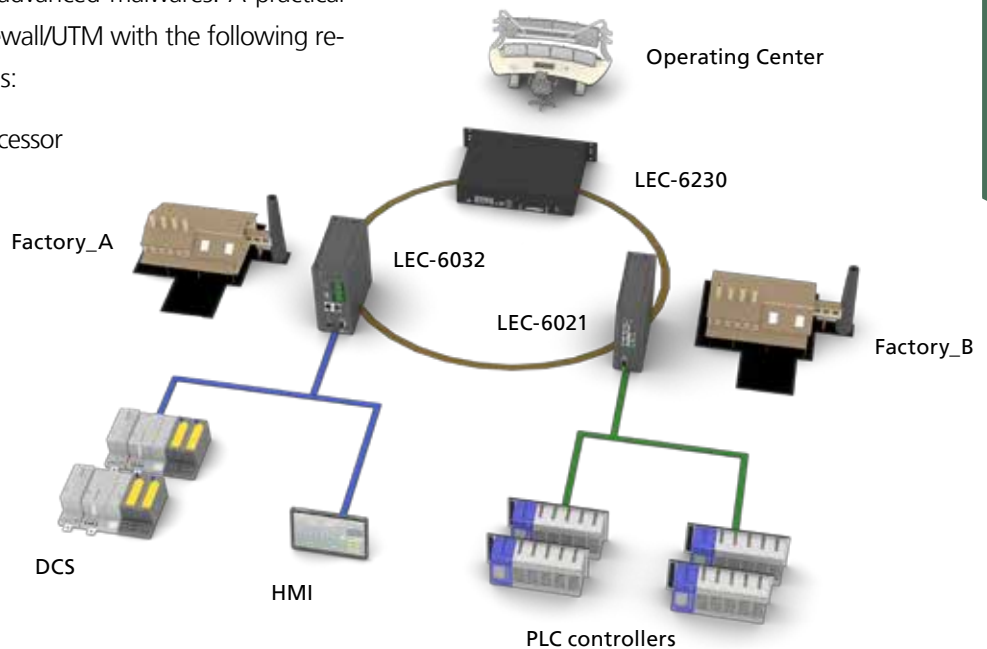
The Solution

Lanner's LEC-6032 is purposely made to address the cyber threats targeting on energy sectors. LEC-6032 is driven by Intel® Atom™ E3845 1.91GHz SoC CPU, a low power consumption processor with steady performance for network traffic management. In addition, the CPU is programmed with AES-NI (Advanced Encryption Standard – New Instruction), virtualization technology as well as Execute Disable Bit to reinforce system security and network defense. The CPU is scalable for instruction and policy implementation to detect unauthorized behaviors and malware, as well as conduct validation and authentication processes.

LEC-6032 comes with multiple LAN ports and SFP ports for Ethernet connections with other networked devices like PLCs, HMIs or SCADAs. Once connections established, LEC-6032 can act as the firewall/UTM in the center to monitor and control the network traffic of the operating environment. Besides, some LAN ports of LEC-6032 provide bypass functions to ensure serviceability. In addition, LEC-6032 supports wide operating temperature -40~75ºC and dual power inputs as required for deployment in energy sectors.

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