Lanner

Artificial Intelligent & Edge Computing (AIEC)

STARTER KIT

1. Overview

Edge AI Platform LEC-2290

- Intel® Core™ i7-8700T/i7-8700 (CFL) & UHD Graphics 630
- 4x PoE ports to Support Multi Video Streams DL Inference Requests and Data Analytics
- 2x RJ45 GbE LAN, 4x USB3.0, 6x COM Ports, 8x DI/DO
- Rich Expansion w/ 1x PCIe*16, 1x Mini-PCIe, 1x B Key M.2 for Add-on AI Modules & Accelerators

Vision & Analytics Suite

Pre-Installed software stack consists of :
- Intel's Edge Insights for Industrial
- Intel® Distribution of OpenVINO™ Toolkit
- AIoT machine vision reference implementations
- Ubuntu 18.04 LTS ready

VALUE Proposition

- Faster Edge Deployments
- Market Uptake
- Quicker Productization
- E2E AIEC Solutions For Industrial Developers & Ecosystem partners
- Value-Added SW Suite

WHO NEEDS THIS?

•ISV AND SI WHO ENGAGE WITH AIOT AND EDGE DEPLOYMENTS

TARGET APPLICATIONS

•AI POWERED MACHINE VISION
•HIGH PERFORMANCE EDGE DATA ANALYTICS
•MACHINE AUTOMATION CONTROLLER & INSPECTION SYSTEMS

•BUILDING AUTOMATION
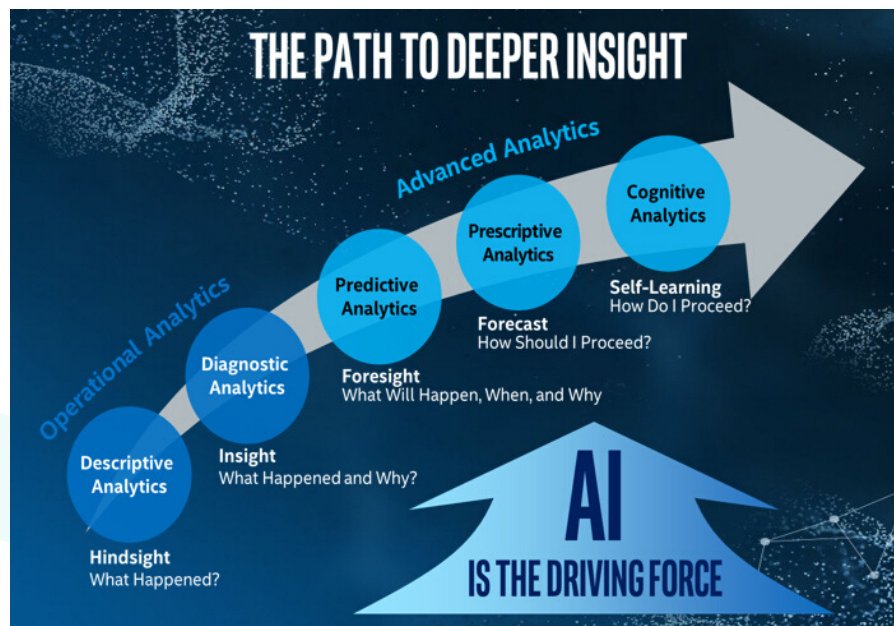•PHYSICAL SECURITY
•ENVIRONMENT MONITORING
•GREENHOUSE CONTROL

2. WHY AI on Lanner IEC ?

Data Deluge

Avg. Internet User	1.5GB DATA/DAY
Smart Hospital	3TB DATA/DAY
Autonomous Vehicle	4TB DATA/DAY
Connected Airplane	40TB DATA/DAY
Smart Factory	1PB DATA/DAY

Note: Amalgamation of analyst data and Intel analysis. Source 1 / Source 2

Analytics Curve

THE PATH TO DEEPER INSIGHT

Advanced Analytics

Operational Analytics

Cognitive Analytics
Self-Learning
How Do I Proceed?

Prescriptive Analytics
Forecast
How Should I Proceed?

Predictive Analytics
Foresight
What Will Happen, When, and Why

Diagnostic Analytics

Insight
What Happened and Why?

Descriptive Analytics

Hindsight
What Happened?

AI
IS THE DRIVING FORCE

Vertical Insights
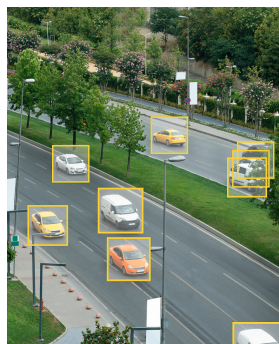
Business   **Security**   **Operational**

3. WHY AIEC Starter Kit for AIoT

AI IS EMPOWERING INDUSTRIAL AUTOMATION

*"The global market for AI solutions for manufacturing applications will reach $13B by 2025"**

*"The economic impact of factory IoT applications forecast to reach $1.2 Trillion by 2025".***

- **Manufacturing**
Efficiency & Throughput

- **Energy**
Efficiency & Availability

- **Buildings**
Sustainability & Tenant Experience

- **Logistics**
Efficiency & Throughput

KEY CHALLENGES FOR INDUSTRY 4.0

- High total cost of ownership
- Scalability, Security & data privacy
- Locked and proprietary, non-flexible
- High total cost of ownership
- Lack of general purpose platform for multiple analytics use cases

AIoT EXAMPLE USE CASES

People

- Worker Safety
- Worker Behavior

Machine

- Predictive Maintenance
- Robotics Pick & Place

Material

- Product Defect detection
- Raw Material Appearance Inspection
- Asset Management

Process

- Factory operation optimization
- Optimization of raw material utilization
- Predictive Analytics

Environment

- Temperature optimization
- Humidity optimization

" Source: Tractica, Global Marketing Research Firm*
*** Source: McKinsey & Company, The Internet Of Things: Mapping The Value Beyond The Hype. "*

4. Edge AI Platform LEC-2290

- Intel® Core™ i7-8700T/i7-8700 & UHD Graphics 630
- 4x PoE ports to Support Multi Video Streams DL Inference Requests
- Rich Expansion w/ 1x PCIe*16, 1x Mini-PCIe, 1x B Key M.2 for Add-on AI Modules & Accelerators ranging from VPU(MYRIAD, HDDL), dGPU & FPGA
- 2x DDR4 2133/2400 SO-DIMM, Max. 32GB
- 2x RJ45 GbE LAN, 4x USB3.0, 6x COM Ports, 8x DI & 8x DO
- 2x Removable HDD/SSD External Slot w/ RAID, 1x mSATAd
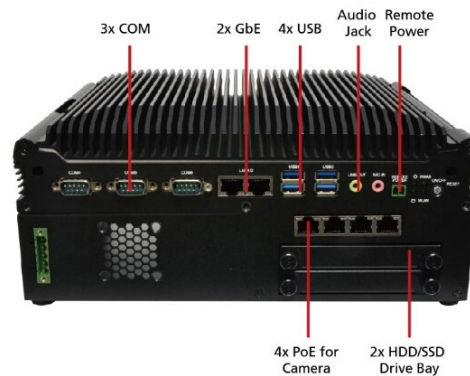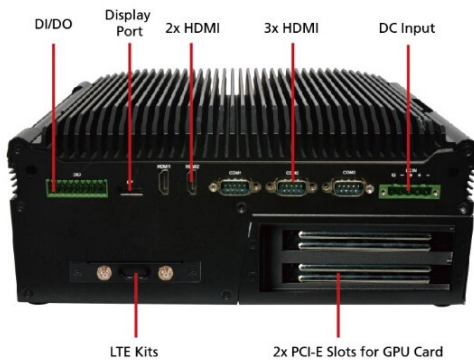
System

CPU	Support Intel® Core™ i7-8700T/i7-8700 FCLGA1152), Coffee Lake S, 3.2GHz
Memory	DDR4 2133/2400 SO-DIMM. Max. 32 GB
Graphics	2x HDMI, 1x DP, Intel® UHD Graphics 630
Audio	Mic-in, 1x Line-out
Power	9~30 VDC, ATX
Operating Temp	-20°C~55°C (35W CPU) -20°C~45°C (65W CPU)
Dimension	275 x 115 x 225 mm
Driver	Windows 10 IoT, Ubuntu 16 and Above, Fedora 25 and Above, Cent OS 7 and Above (Linux Kernal 3.2)
Certificate	CE/FCC, Class A)

I/O Interface

|	
Ethernet	2x GbE RJ45, 4x PoE RJ45 @IEEE 802.3at (Total PoE Budget of 60W) Intel i210IT
Storage	SATA III Intel i210IT, 2x Removable HDD/SSD External Slot w/ RAID
I/O	6x D-Sub RS232/422/485, 8x DI/DO 4x USB 3.0, Button for Power-on, Reset, Remote Power Switch
Expansion	1x Mini-PCIe(PCIe + USB2.0) w/ Nano-SIM 1x PCIe *16 1x M.2 1x B Key M.2 (PCIe + USB3.0) w/ Nano-SIM

5. Vision & Analytics Suite

1. Edge Insights for Industrial

Edge Insights for Industrial is an open and modular product validated solution that aggregates and processes time series, image/video data at the edge to provide useful insights via edge data analytics.

- Modular message/data bus for machine & video workloads
- Containerized ingredients for image processing, storage, and analytics
- Support for industrial optimized inference and training at the Edge
- Connectors for easy usage of Intel®Media Software Development Kit（Intel® Media SDK), OpenVINO™ toolkit, and Intel® Math Kernel Library（Intel® MKL)
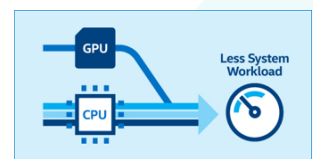
2. Intel®Distribution of OpenVINO™ Toolkit
Deploy high-performance, deep learning inference
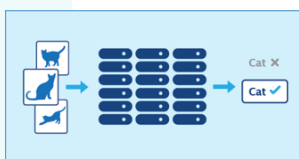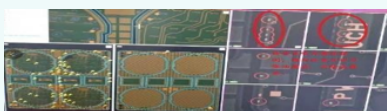

Deep Learning
Inference

Traditional
CV

HW
Acceleration

3. Industrial Automation Reference Implementations
Prebuilt implementations to deploy faster E2E vision based AIoT solutions

Predictive
Maintenance

Human
Detection

Facial Recognition &
Detection

- Object Flow Detector

- Restricted Zone Notifier
- Safety Gear Detector

- Machine Operator Monitor

6. AIEC Starter Kit Option

BASIC - AIEC STARTER KIT	ADVANCED - AIEC STARTER KIT W/ ADD-ON AI MODULES
• LEC-2290 w/ Intel® Core™ i7-8700T/8700 , 16GB memory, 128 GB storage	• LEC-2290 w/ Intel® Core™ i7-8700T/8700 , 32GB memory, 265 GB storage, • 1 x Network Camera • 1 x mPCIe Movidius VPU * 1 card
Price: $xxxxx **Q3, 2020**	**Price: $xxxxx** **Q4, 2020**

REACH OUT TO LANNER REPRESENTATIVE TO LEARN MORE

- Kit Availability Details
- Possible Kit Customization Options
- Quotation
- Lanner IEC Feature Solutions for Edge Intelligence

contact@lannerinc.com