

# Artificial Intelligent & Edge Computing (AIEC)

STARTER KIT



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VERSION 0.2  
OCT 7, 2020

## 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, 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

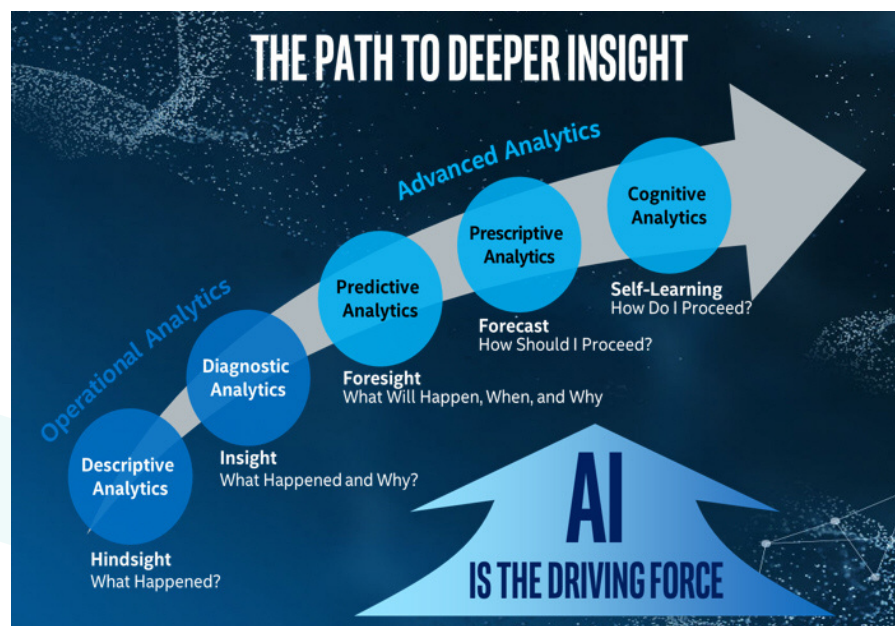
## 2. WHY AI on Lanner IEC ?

### 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

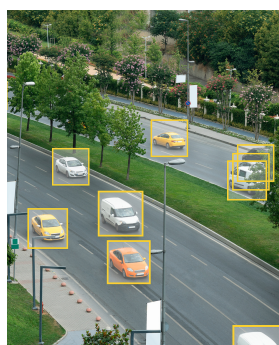
Note: Amalgamation of analyst data and Intel analysis. [Source 1](#) / [Source 2](#)

### Analytics Curve



### 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

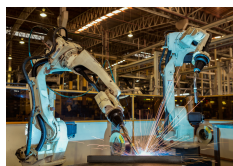
- High total cost of ownership
- Scalability, Security & data privacy
- Locked and proprietary, non-flexible
- High total cost of ownership
- Lack of general purpose platform for multiple analytics use cases

### 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

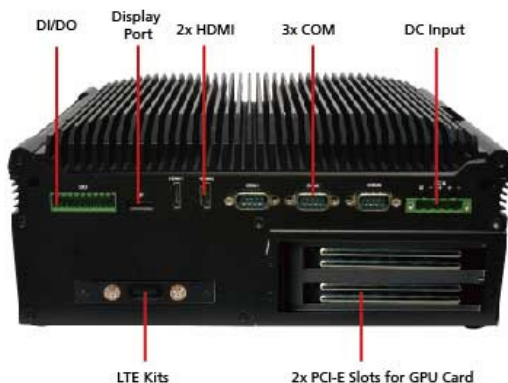
\* Source: Tractica, Global Marketing Research Firm

\*\* 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 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 mSATA



### System

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

### I/O Interface

<b>Ethernet</b>	2x GbE RJ45, 4x PoE RJ45 @IEEE 802.3at (Total PoE Budget of 60W) Intel i210IT
<b>Storage</b>	SATA III Intel i210IT, 2x Removable HDD/SSD External Slot w/ RAID
<b>I/O</b>	6x D-Sub RS232/422/485, 8x DI/DO 4x USB 3.0, Button for Power-on, Reset, Remote Power Switch
<b>Expansion</b>	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



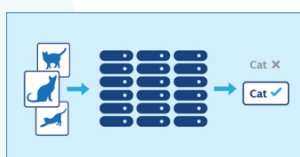
### 1. Edge Insights for Industrial

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

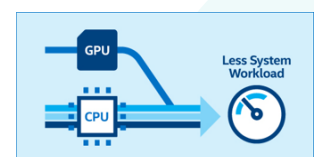
Deploy high-performance, deep learning inference



Deep Learning  
Inference



Traditional  
CV



HW  
Acceleration

### 3. Industrial Automation Reference Implementations

Prebuilt implementations to deploy faster E2E vision based AIoT solutions

Predictive  
Maintenance



- Object Flow Detector

Human  
Detection



- Restricted Zone Notifier
- Safety Gear Detector

Facial Recognition &  
Detection



- Machine Operator Monitor

## 6. AIEC Starter Kit Option



### BASIC - AIEC STARTER KIT



- LEC-2290 w/ Intel® Core™ i7-8700T/8700 , 16GB memory, 128 GB storage

**Price: \$xxxxxx**

**Q3, 2020**

### ADVANCED - AIEC STARTER KIT W/ ADD-ON AI MODULES



- LEC-2290 w/ Intel® Core™ i7-8700T/8700 , 32GB memory, 256GB storage,
- 1 x Network Camera
- 1 x mPCIe Movidius VPU \* 1 card

**Price: \$xxxxxx**

**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