

Breakout Session

Next Generation AI Applications

Powered by 11th Gen Intel® Core™ and Intel® Celeron® processors,
and Intel® Xe™ Graphics

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ADVANTECH

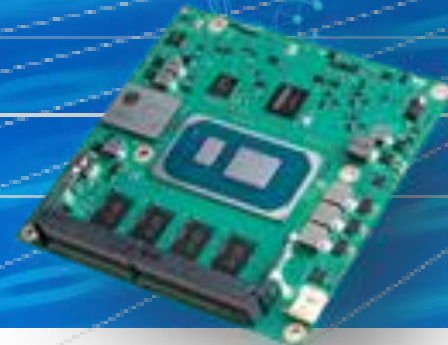
Enabling an Intelligent Planet

ADVANTECH

Enabling an Intelligent Planet

intel
partner
Titanium

11th Gen of Intel® Core™ Processors Boards & Systems



Target Markets

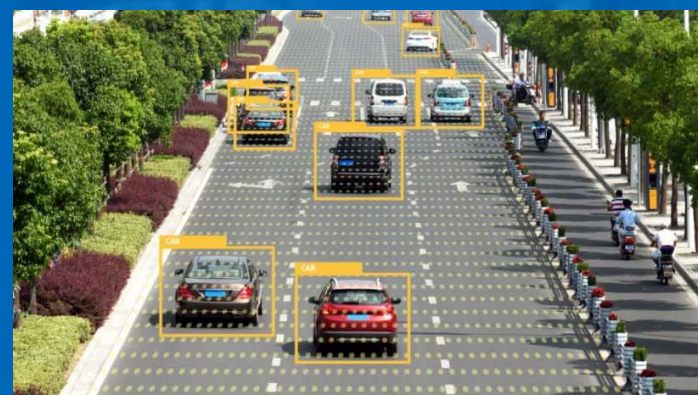
Manufacturing



AOI/Defect Inspection



AGV/AMR



Traffic Monitoring



Smart Retail

Pandemic Prevention



Medical Imaging



Robotics Automation



Production Worker Monitoring



Remote Access



Video Surveillance

New edge computers Based on 11th Gen Intel® Core™ and Intel® Celeron® processors (Codename: Tiger Lake UP3)



Computing power enhancement

4 x 4K Extreme graphics performance

High Performance

Built on our third-generation, 10 nm microarchitecture, 11th Gen Intel® Core™ processors post up to 23% gain in single-thread performance

Compact Size for Installation

With small form factor and slim design, Advantech system solutions are suitable for installation in factory automation, smart city and retail fields

Intel® Iris® Xe™ Graphics

Intel® Iris® Xe graphics with up to 96 execution units that will deliver up to 2.95x1 the graphics performance of 8th Gen Intel® Core™ processors

Vertical Software Support

Pre-integrated with iEdge for factory automation data collection; EdgeX with versatile protocols support for smart city and SignageCMS for retail applications

Hardware-enabled VNNI AI Acceleration


Supports Intel® Distribution of OpenVINO™ toolkit including various pre-trained AI models and software tools for inference acceleration

Real-time Computing

Time-Sensitive Networking (TSN)
To reduce latency and minimize jitter for synchronous process control and real time computing

AI inferencing capabilities

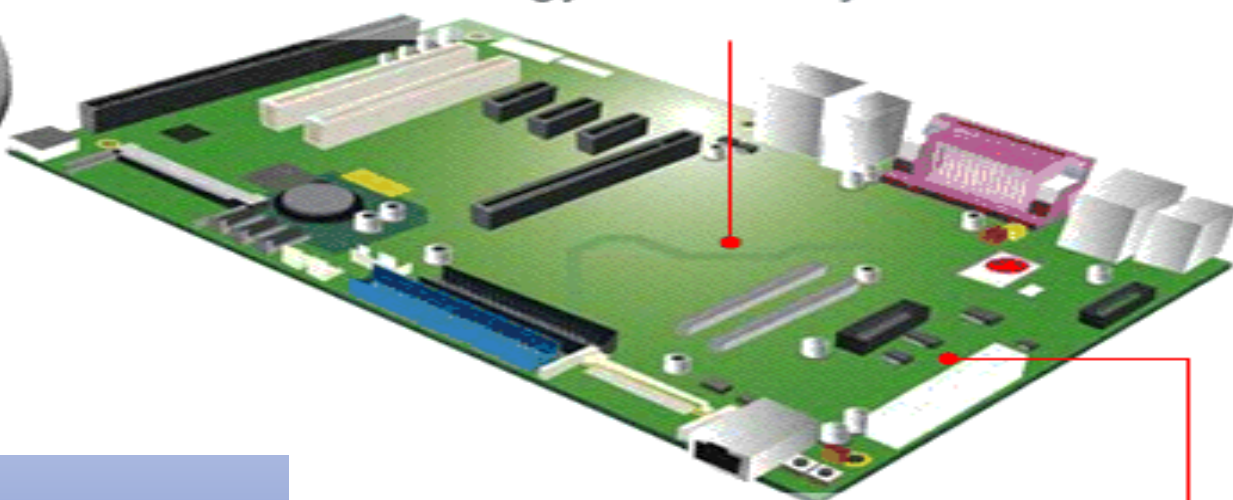
Why COM?



80% Done in SOM
Processor and general interface technology done in System on Module

Your Own Solution Board
20% Flexible Design for Perfect Fit
Flexible customer solution board resources and design focus on application know-how and core competence

Time to Market




Lower Assembly Cost

Module

Project

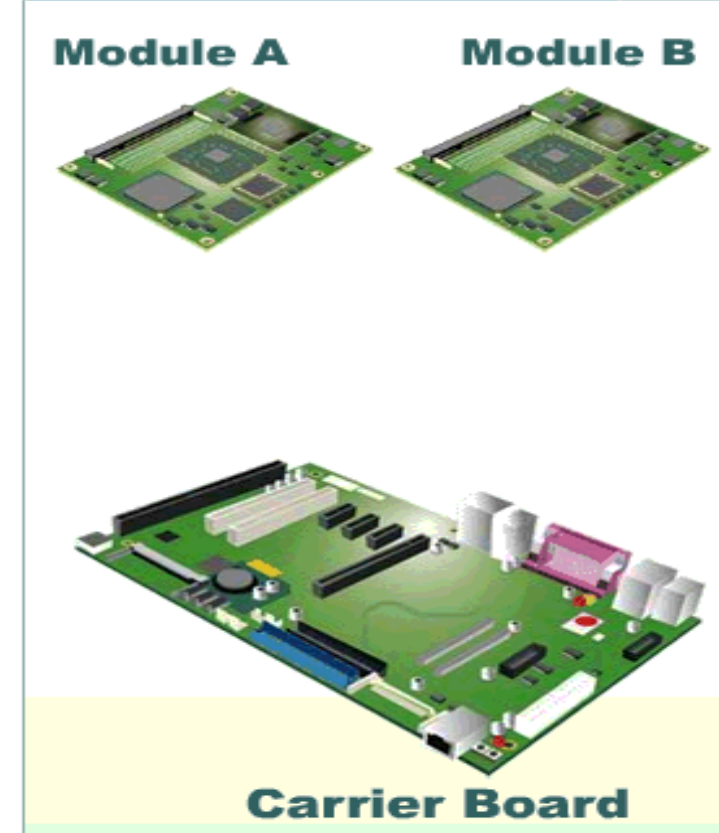
Chassis



Lower Upgrade Cost

Module A **Module B**

Carrier Board



Key Benefit 2

Focused Resource Allocation

Shorten Development Schedule & Lower Development Cost

Resources Focused on Key Vertical Technology



Key Benefit 4

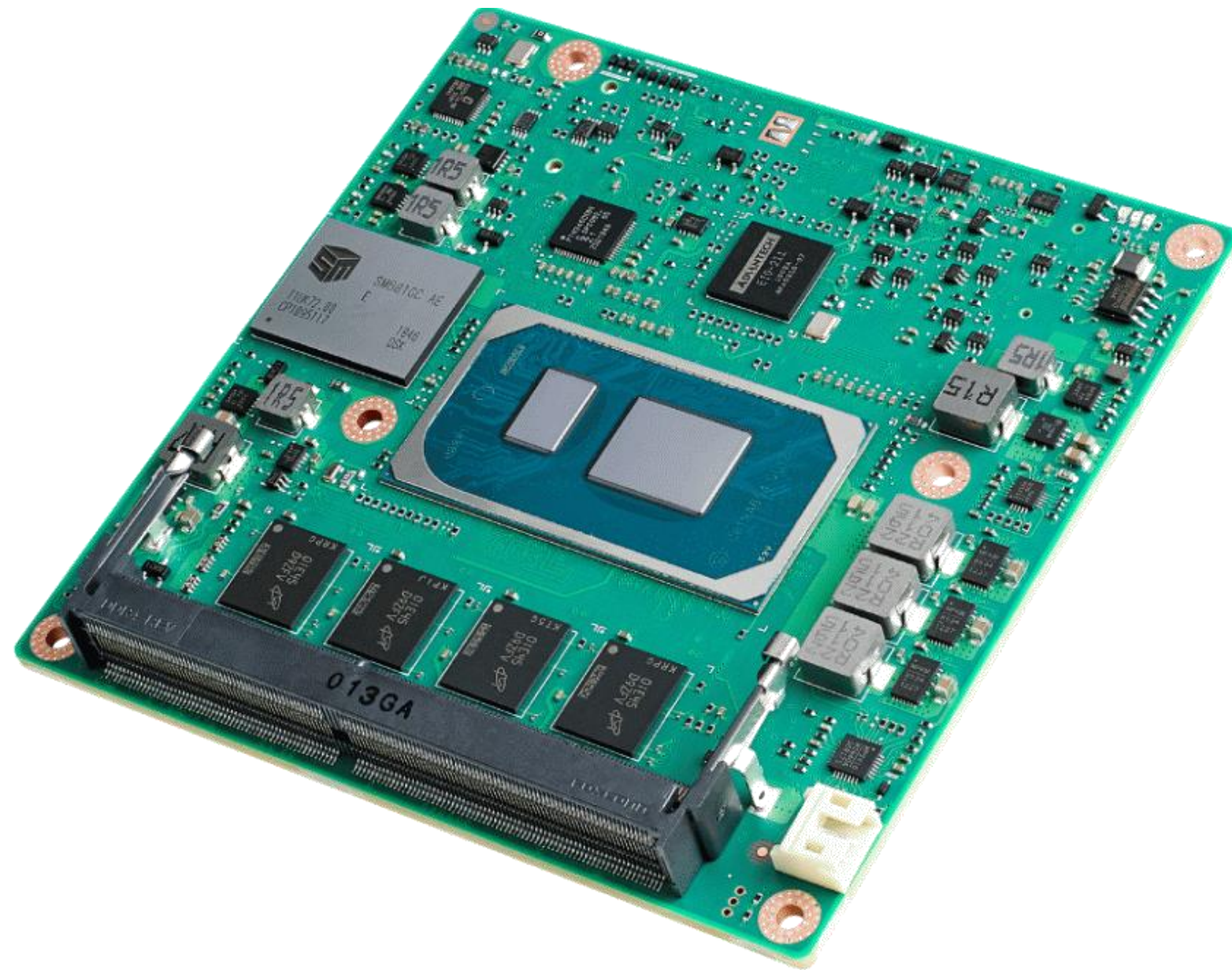
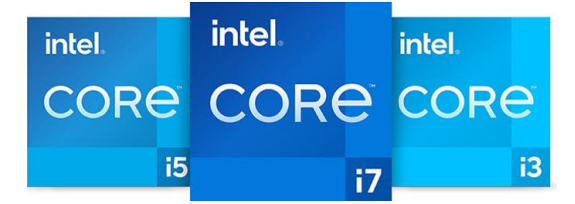
Core Knowledge Security

Core knowledge is secured at clients site

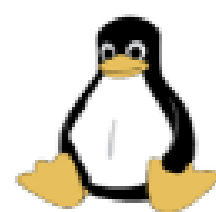


SOM-6883: COMexpress Compact

Powered by 11th Gen Intel® Core™ Processor (Codename: Tiger Lake – UP3)



- 11th Gen Intel® Core™ architecture
- 6 different SKUs (12W~28W cTDP)
Extended temp SKUs available
- Quad Display: 4x 4K (various BOM options)
- Onboard NVMe (x4 connected, optional)
- High speed & Rich I/O:
 - 2x USB 3.2 (Gen 2)/ 8x USB 2.0
 - 2x USB 4.0 / TBT (option on Carrierboard)
 - 1x 2.5G Ethernet (optional Time-Sensitive Networking, TSN)
 - 2x COM Ports, CAN option
 - 1x PCIeX4 (Gen4)/ 5x PCIeX1
 - 8 Bit GPIO



WISE-PaaS/ DeviceOn

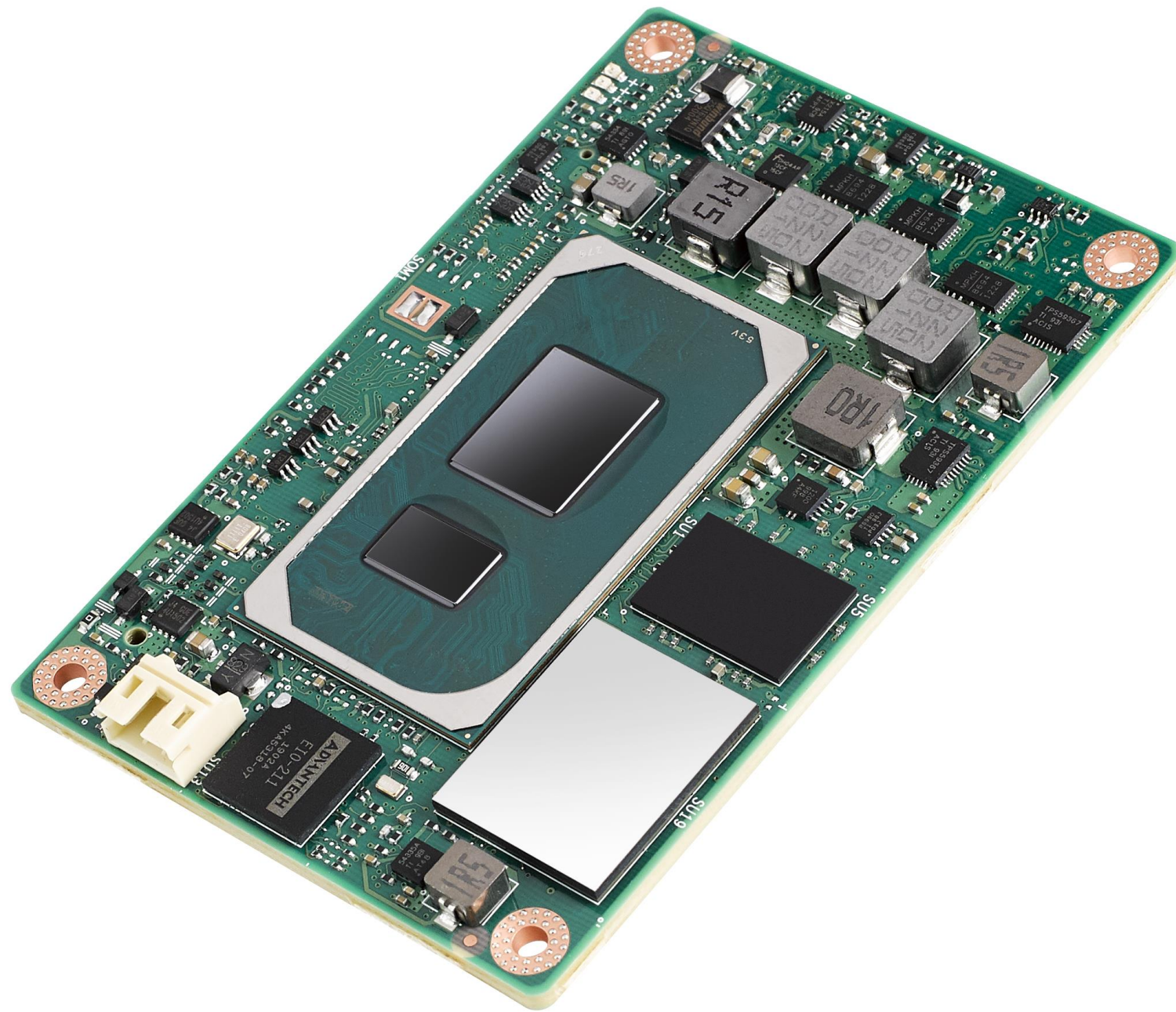
iManager

ubuntu

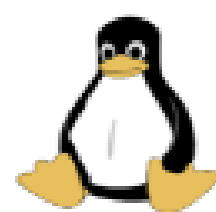
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SOM-7583: COMexpress Mini

Powered by 11th Gen Intel® Core™ Processor (Codename: Tiger Lake – UP3)



- 11th Gen Intel® Core™ architecture
- 6 different SKUs (12W~28W cTDP)
Extended temp SKUs available
- Dual Display: 2x 4k (Type 10 limitation)
- Onboard NVMe (x4 connected, optional)
- High speed & Rich I/O:
 - 2x USB 3.2 (Gen 2)/ 8x USB 2.0
 - 2x USB 4.0 / TBT (option on Carrierboard)
 - 1x 2.5G Ethernet (optional Time-Sensitive Networking, TSN)
 - 2x COM Ports, CAN option
 - 1x 4xPCIeX1
 - 8 Bit GPIO



WISE-PaaS/ DeviceOn

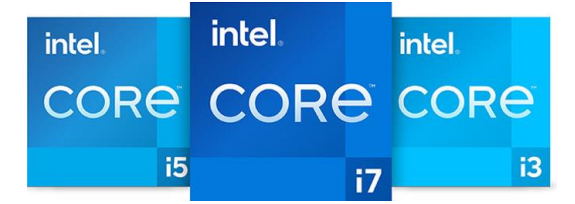
iManager



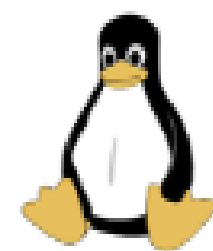
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SOM-5883: COMexpress Basic

Powered by 11th Gen Intel® Core™ Processor (Codename: Tiger Lake – H)



- 4 different SKUs (24W, 45W cTDP)
Extended temp SKUs available
- Quad Display: 4 x 4K
- Onboard NVMe (x4 connected, optional)
- High speed & Rich I/O:
 - 2x USB 3.2 (Gen 2)/ 8x USB 2.0
 - 2x USB 4.0 / TBT (option on Carrierboard)
 - 1x 2.5G Ethernet (optional Time-Sensitive Networking TSN)
 - 2x COM Ports, CAN option
 - 1x PCIeX16 (Gen4)/ 8x PCIeX1 (Gen3)
 - 8 Bit GPIO



WISE-PaaS/ DeviceOn

iManager





DEPLOY DEEP LEARNING SOLUTIONS WITH INTEL[®] DISTRIBUTION OF OPENVINO[™] TOOLKIT

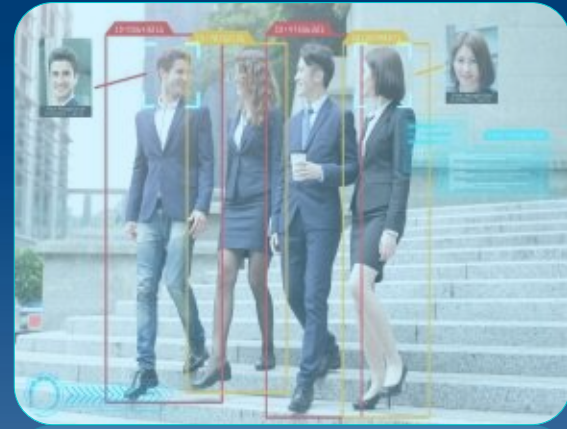
1. BUILD

2. OPTIMIZE

3. DEPLOY

Edge AI Suite

Instant User Experience & Fast AI DevOps



People/Pose Detection



Face Detection



Object Detection



Image Classification

Empower ADVANTECH Device at Edge AI

Powerful

Intel® CPU
computing power

+AI Chips

High coverage support
on more AI accelerators

Faster

Time reduced
to build up settings

Easy

Edge AI inference benchmark
and demo

Use Cases by Pre-Trained Models

Self-Driving Car



by Object Detection

Targeted Advertising



by Facial Detection

People Counting



by Person Detection

AI Fitness Coach



by Pose Estimation

Simple Installation on ADVANTECH Platforms

- Reduce time to build AI execution environment
- All-in-one installation & ready-to-use configurations

Install the Intel® Distribution of OpenVINO™ toolkit core components

Install Microsoft Visual Studio* with C++ 2019 or 2017 with MSBuild

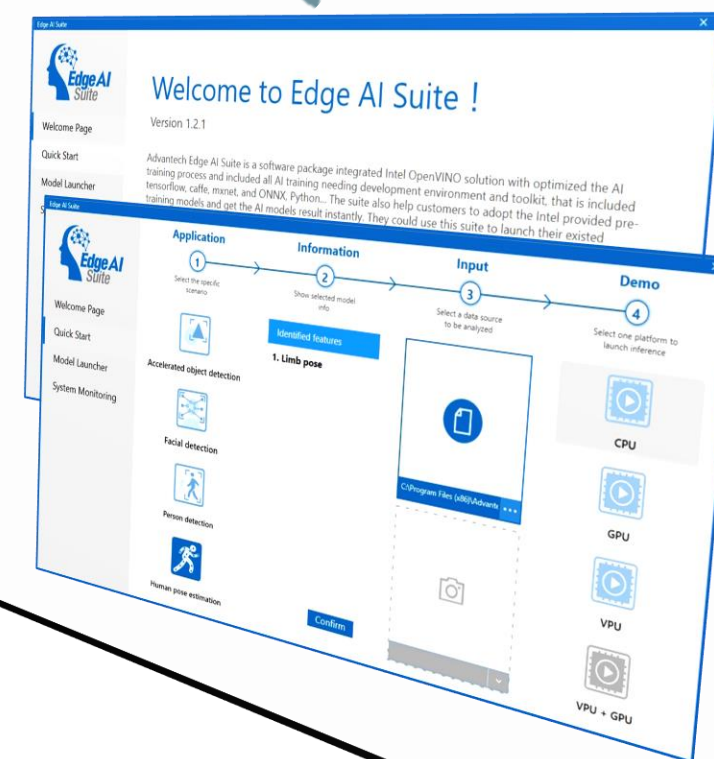
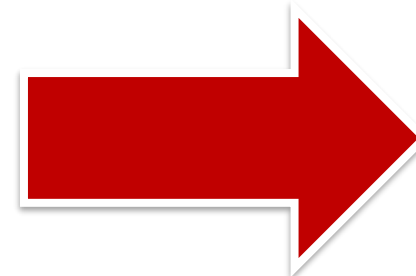
Install CMake 3.10 or higher 64-bit

Install Python 3.6 - 3.8 64-bit

Set Environment Variables

Run Verification Scripts to Verify Installation

Study and Implement Programming Guides



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embedded@advntech.eu

The background features a complex, abstract pattern of thin, glowing lines in shades of blue, purple, and yellow, creating a sense of depth and movement. A solid dark blue rectangular box is positioned on the left side of the image, containing the text.

Thank you
for watching!

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