Breakout Session

Next Generation AI Applications
Powered by 11th Gen Intel® Core™ and Intel® Celeron® processors, and Intel® Xe™ Graphics

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

**Manufacturing**
- AOI/Defect Inspection
- Robotics Automation
- Production Worker Monitoring

**Smart City**
- AGV/AMR
- Traffic Monitoring
- Remote Access
- Smart Retail
- Video Surveillance

**Pandemic Prevention**
- Medical Imaging

**Medical Imaging**
- Pandemic Prevention
New edge computers
Based on 11th Gen Intel® Core™ and Intel® Celeron® processors
(Codename: Tiger Lake UP3)

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

4 x 4K Extreme graphics performance

AI inferencing capabilities

For more complete information about performance and benchmark results, visit intel.com/benchmarks. Refer to software.intel.com/en-us/articles/optimization-notice for more information regarding performance and optimization choices in Intel® software products.
Why COM?

Time to Market

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

Lower Assembly Cost
Module
Chassis

Lower Upgrade Cost
Module A
Module B
Carrier Board

Focused Resource Allocation
Shorten Development Schedule & Lower Development Cost
Resources Focused on Key Vertical Technology

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

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Advantech
WISE-PaaS
WISE-PaaS/ DeviceOn
iManager
ubuntu

Microsoft
Azure
Cloud

Intel
Core
i5
i7
i9

TSN

Edge Intelligence Platform

DeviceOn

iManager

ubuntu

Microsoft

Intel
Core
i5
i7
i9

TSN
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
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
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

- **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

Empower ADVANTECH Device at Edge AI
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
Info?

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Go Together, We Go Far and Grow Big
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