Partner Presentation

The Virtualized Infrastructure for Industrial Automation Based on Intel 12th Core Processor and Ubuntu

Jarry Chang, DFI

What's DFI

Industrial Computer Solutions

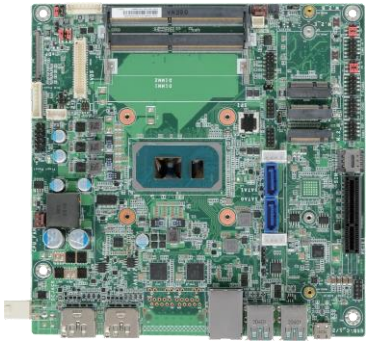
- From Modules and Boards to Integrated Systems and Embedded Solutions.

Industrial Motherboards

System-On-Modules

Industrial Computers

Industrial Panel PCs & Displays



TGU171
(11th Generation Intel® Core™ Processors)

ADS310
(12th Generation Intel® Core™ Processors)

From Small To Large

Industrial Motherboards

System-On-Modules

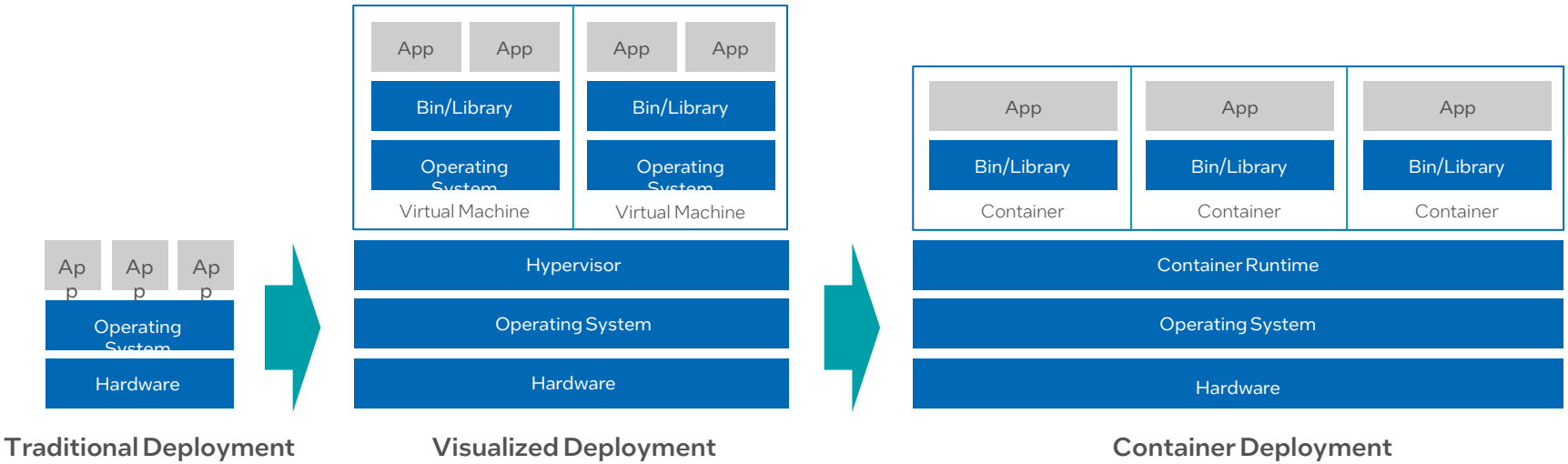
Industrial Computers

Industrial Panel PCs & Displays

WORKLOAD CONSOLIDATION IN INDUSTRIAL IOT

Using Virtualization Technologies to Transform Operations for a More Efficient Industry

Differences between virtualization and containerization

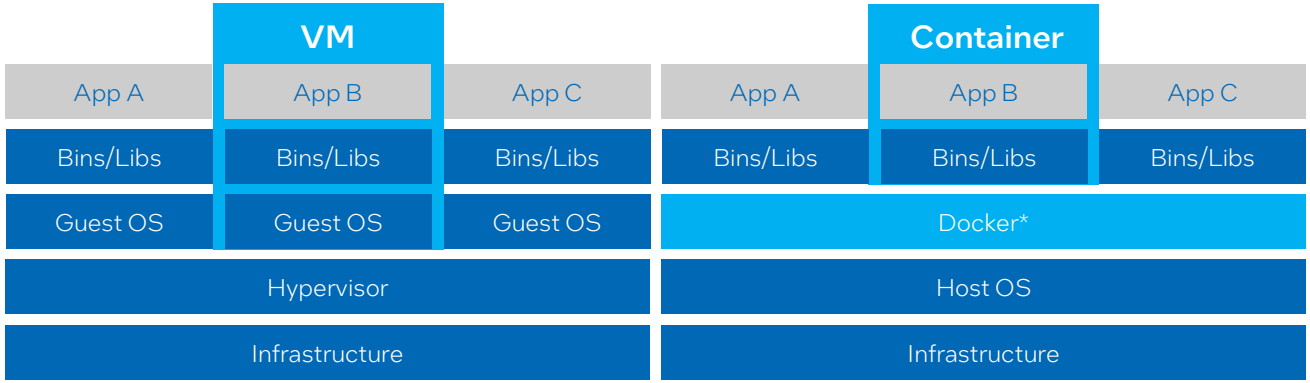


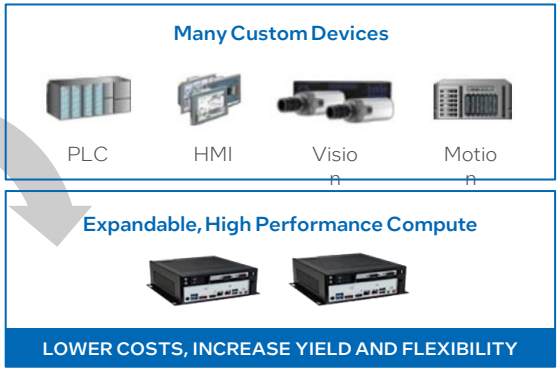
Traditional Deployment

Visualized Deployment

Container Deployment

Workload Consolidation at the Edge





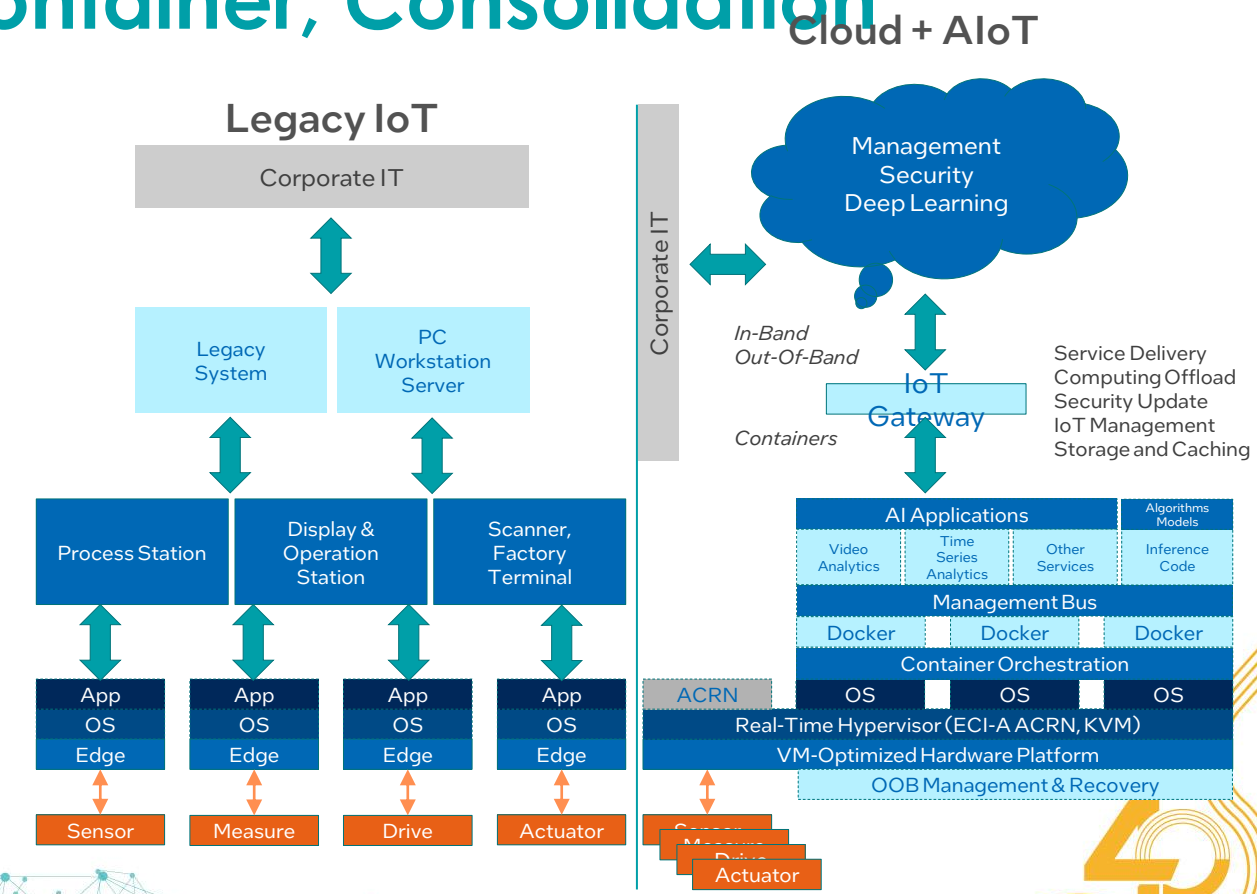
3C: Cloud, Container, Consolidation

Enterprise Level
(ERP, BI)

Supervisory Level
(MES)

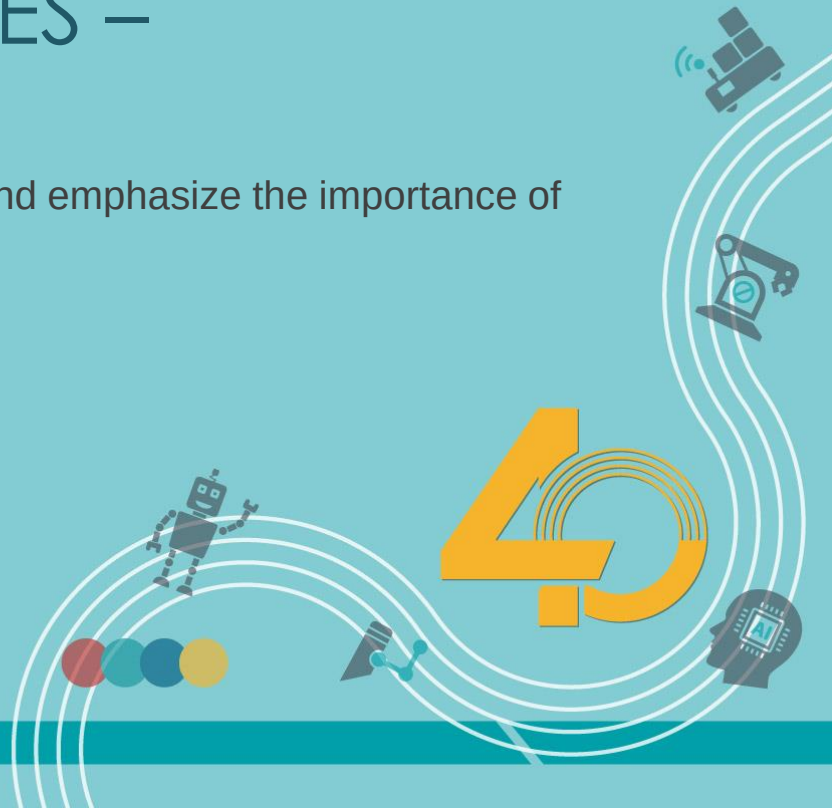
Control Level
(Automation System)

Device Level
(Edge)



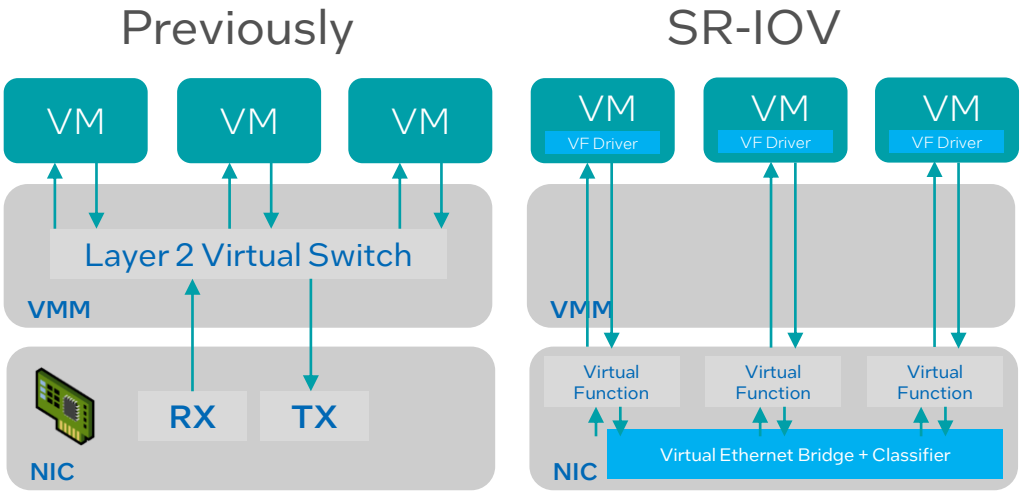
ENABLING TECHNOLOGIES – GFX VIRTUALIZATION

Introducing the main current virtualization technologies and emphasize the importance of Graphics SR-IOV.



SR-IOV (Single Root I/O Virtualization): NIC as Example

Isolation of PCIe resources for manageability and performance



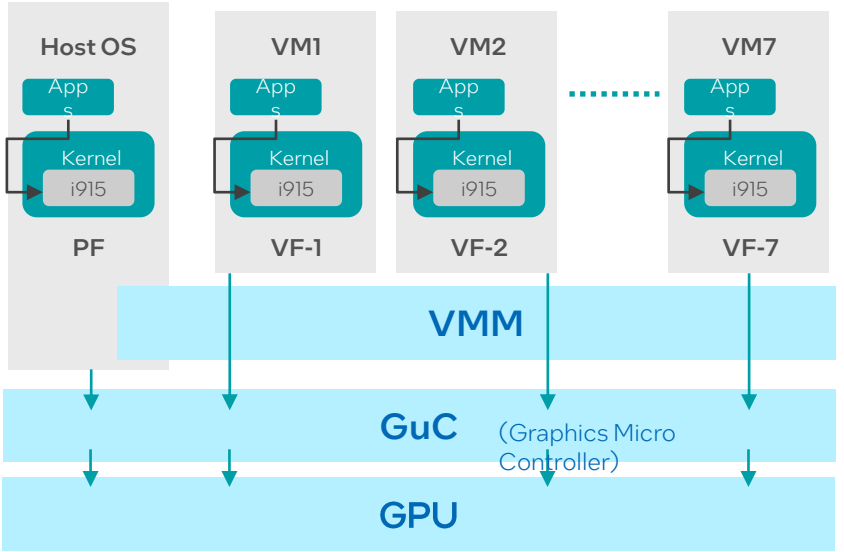
Virtual Function (VF) Driver

Virtual Function (VF) Physical Function (PF)

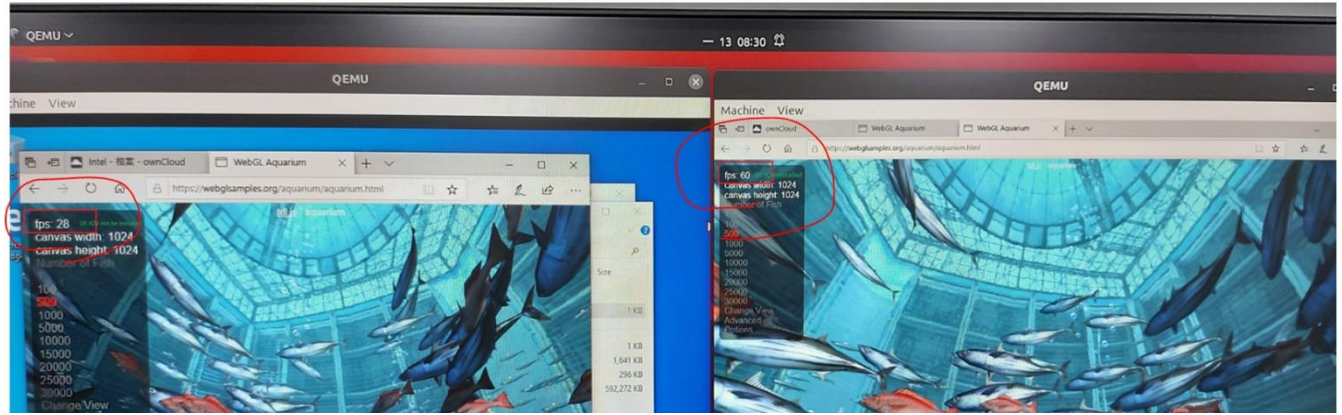
Graphics SR-IOV: Improving Graphic Virtualization

High-quality and high-performance with minimal software overhead

- The graphics virtualization infrastructure is exposed to system software by the Single Root I/O virtualization standard (SR-IOV), of the PCIe standard.
- PCIe interface allow multiple software stacks(VM) to each get their own "graphics device."
- Each VM can access fully accelerated graphics capabilities.
- Able to support up to 7 virtual functions.



ADL-S is The First Platform Supporting iGFX SR-IOV



SR-IOV VF Driver not be installed

28 FPS

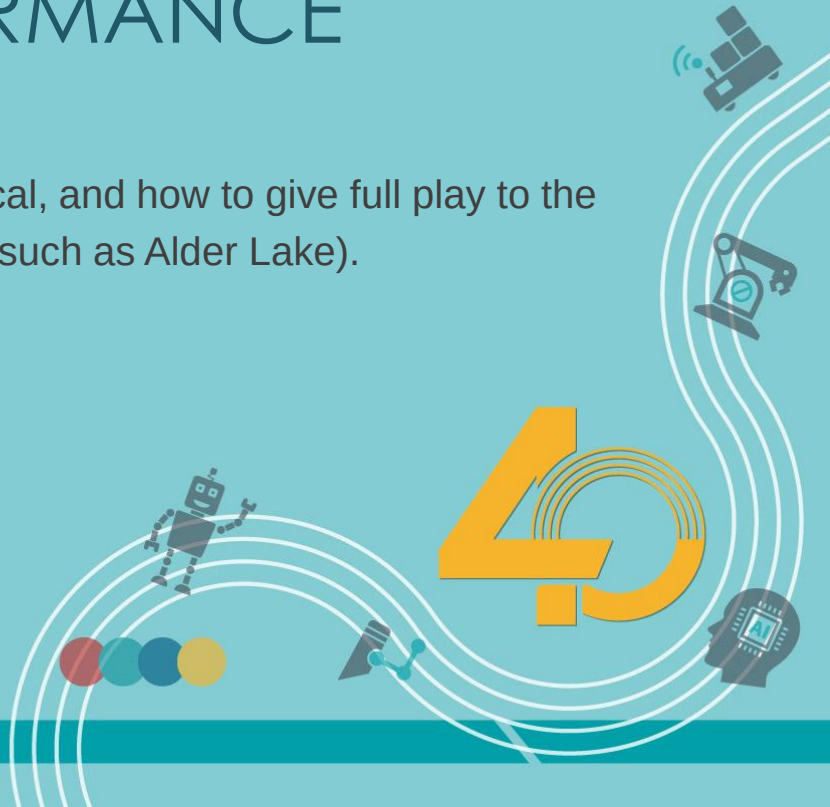
SR-IOV VF Driver installed

60 FPS

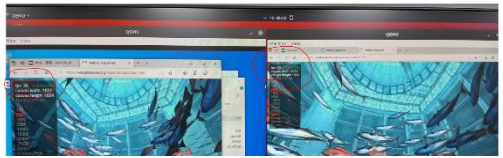
Intel® Xe Graphics architecture, 4 Independent Displays, Up to 8K Display

THE DETAILS AND PERFORMANCE OF SR-IOV POC

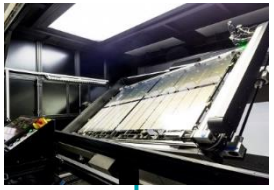
The key points you need to know to make SR-IOV practical, and how to give full play to the advantages of Intel's new generation hardware platform (such as Alder Lake).



POC Architecture Based On Alder Lake-S



SR-IOV
Performance Comparison



OpenVINO™

HDMI™

Local Monitor

15

Remote Monitor

7

15

100M x upto 200 Monitors

HDBT™

RJ45 Over 100M

MILLITRONIC

AI

Container

Ubuntu
(SR-IOV)

Performance
Comparison

App

Win10
(No SR-
IOV)

Win10
(SR-
IOV)

Win10
(SR-
IOV)

Win10
(SR-
IOV)

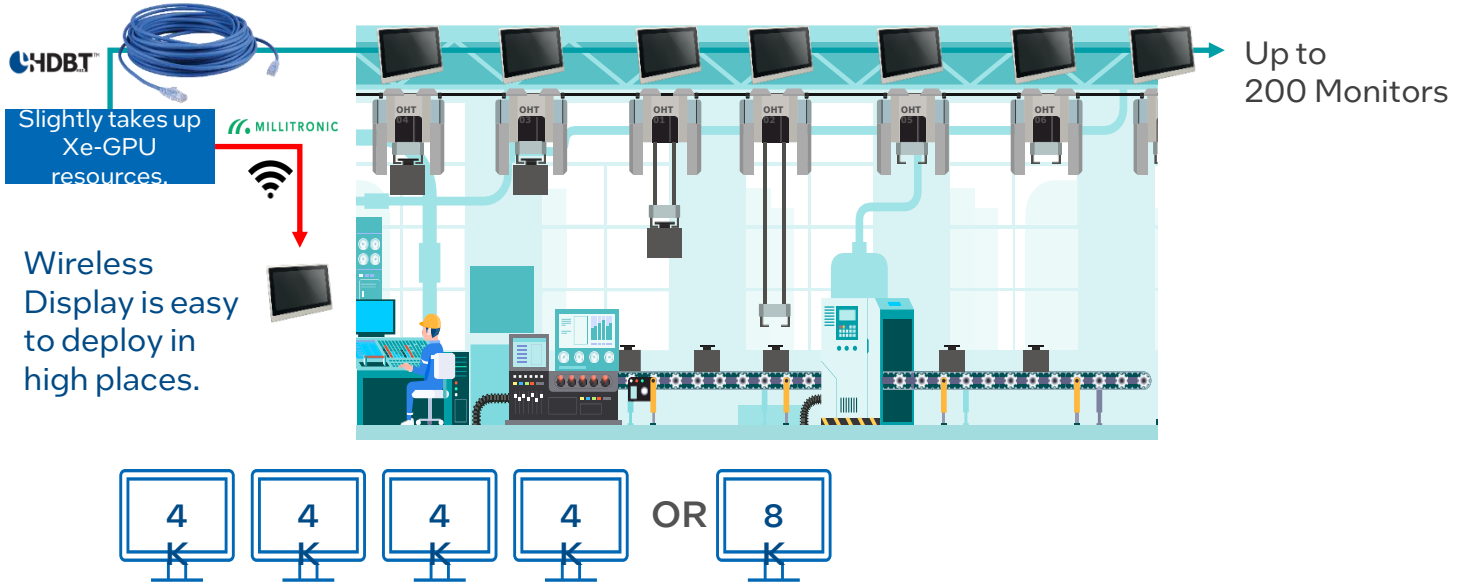
QEMU / KVM Hypervisor

Ubuntu 21.04

DFI ADS310

Refined For Industrial Automation Scenario

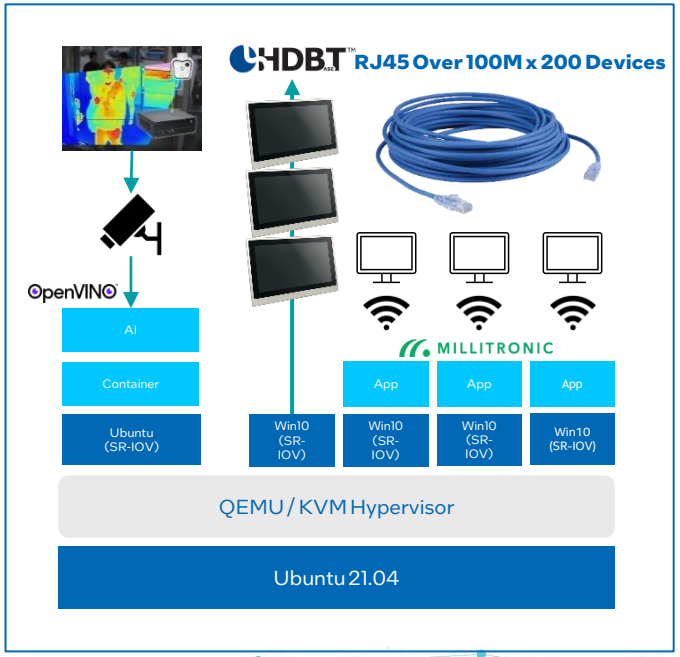
HDBaseT enables the use of a single category cable to meet all of industrial PC requirements, offering video & audio, Ethernet, controls, USB 2.0 and 100W power over 100m/328ft.



There are still four 4K screens or one 8K one for general monitoring purposes, especially for AI applications.

Applicable To Retailer Scenario

Workload Consolidation, Again



DFI ON INTEL GEN 12TH CORE PROCESSOR

When customers have needs, DFI's products is the worthiest of priority.

DFI's Products Are The Worthiest of Priority

EC543-ADS

- 12th Gen Intel Core
- Intel Q670E
- PCIe / PCI expansion slots

EC500-ADS

- 12th Gen Intel Core
- Intel Q670E / H610E
- 2HDMI/DP+1VGA, 3 M.2

EC510/511-ADS

- 12th Gen Intel Core
- Intel Q670E
- PCIe / PCI expansion slots

ST102-ADS

- 12th Gen Alder Lake Intel Core CPU
- Intel Q670E/H610E
- SO-DIMM DDR4
- Foot Stand, DC-in

WM343-ADS

- Intel Alder Lake-S, **up to 16 Cores**
- ECC support (On specific SKU)
- Intel R680E/Q670E, 4x DDR4
- **1x16, 3 x4**
- FLEX ATX 250W/350W/400W/500W

WM120-ADS

- Intel Alder Lake-S, up to 8C/24T
- Intel R689E/Q670E/H610E
- SO-DIMM DDR4/DDR5(TBD)
- 12V/Wider voltage Power in
- PCIe x16 slot
- FLEX ATX 250W

ADS310-R680E/Q670E

- Intel Alder Lake-S, **up to 16 Cores**
- ECC support (On specific SKU)
- Intel R680E/Q670E, 4x DDR4
- **1x16, 3 x4**
- **2 M.2 M & 1 M.2 E key**
- **6 USB 3.2 Gen2, up to 4 GbE LAN**
- **8-Bit DIO**

ADS630-R680E/Q670E

- Intel Alder Lake-S, **up to 16 Cores**
- ECC support (On specific SKU)
- Intel R680E/Q670E, 4x DDR4
- **1x16, 4 x4, 2 PCI**
- **2 M.2 M & 1 M.2 E key**
- **6 USB 3.2 Gen2, up to 4 GbE LAN**
- **8-Bit DIO**

ADP253

- Intel Alder Lake-P, 6 core , 28W
- Max 32/64GB DDR4
- 9~36VV DC
- 1x 2.5GbE, 3x GbE LAN, 4x COM

ADS101/103

- Intel Alder Lake-S, up to 8 core /24threads
- Intel R689E/Q670E/H610E
- SO-DIMM DDR4/DDR5(TBD)
- 12V/Wider voltage Power in
- PCIe x16 slot

ADP553

- Intel Alder Lake-P, 6 core
- 12~15W, 20~28W CPU option
- Max 32GB DDR4/DDR5(TBC)
- 9~36VDC, fanless

ADP171/173

- Intel Alder Lake-S
- Planning

ADP968

- Intel Alder Lake-P platform
- 4-ch SO-DIMM DDR4
- 4 independent Display
- Wide Voltage input 8.5V~20V
- Type 6, R3.1

ADP9A2

- Intel Alder Lake-P platform
- IBECC LPDDR4 onboard up to 16GB
- 4 independent Display
- Support SSD up to 1TB, dTPM
- Type 6, R3.1

Last But Not The Least...

DFI EC70A-TGU Fanless Robust Embedded System Based on 11th Gen Intel® Core™ Processors

Flexible I/O Configuration

ECI Ready

Call To Action

- For Intel-related queries, please reach out to:

  Email: insidesaleslmapac@intel.com

- For Partner-related queries:

  Email: inquiry@dfi.com

  Sales and Quotation: https://www.dfi.com/contact/sales


Thank you
for watching!

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