Innovative 5G MEC Solution with PUZZLE-IN005

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IoT Industrial Specialist

5G Network

4K 📱

» System Capacity

Extreme throughput
Enhanced spectral efficiency
Extended coverage

eMBB

» Mission Critical

Low Latency
High Reliability
High Availability
Location precision

5G

URLLC

mMTC

» Extreme Density

Energy Optimization
High Connection Density
Low Complexity
Extended Coverage

IEI's 5G AIoT Edge to Core Network Solution

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intel. SELECT SOLUTIONS

5G

Wireline Fixed Access

Multi-access Edge Computing

Regional Data Centers

Wireless Access Base Staions & Ran

NVR	Factory	Healthcare	PCs
Retail	Transportation	Energy	Smart City

AIoT Edge Computing

FLEX

- Edge Computing
- AI Ready Solution
- Industrial Switch

On-Premise Edge

- 5G Private Network Gateway
- uCPE
- AI Edge Server

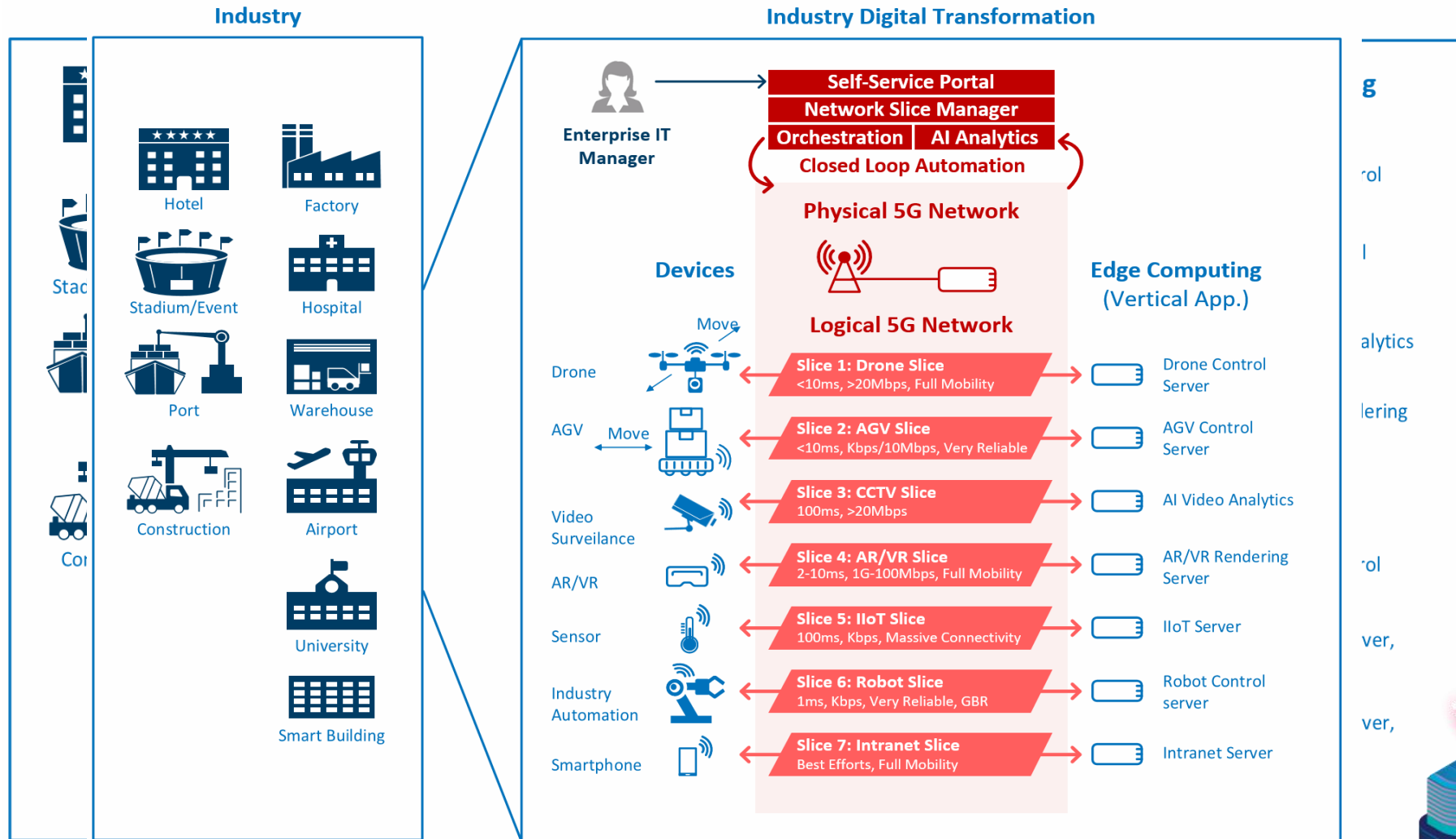## 5G Private Network

- Cybersecurity
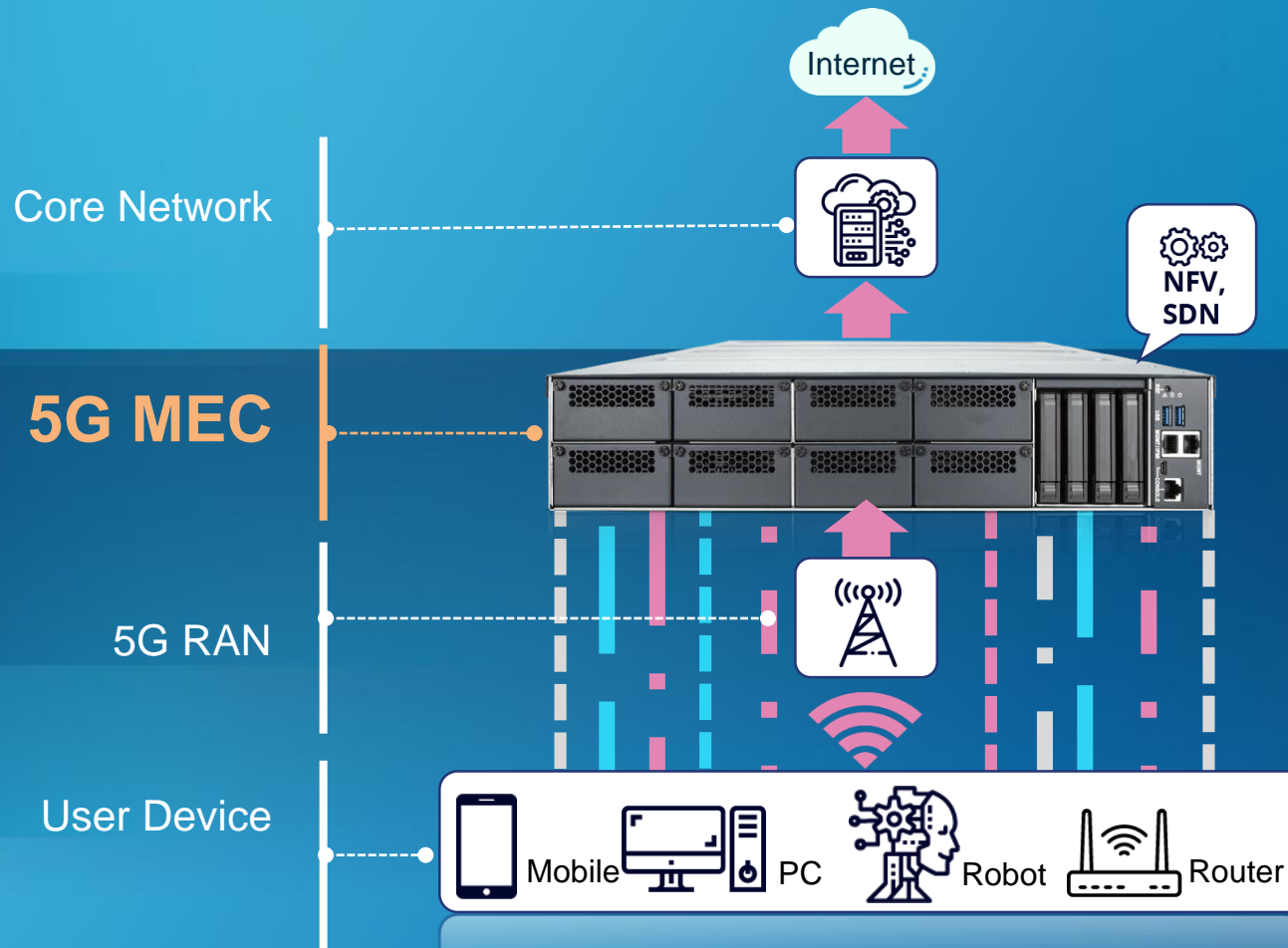- Network Infrastructure
- 5G MEC

Core Network

- 5G CU
- 5G DU

How 5G Private Network Works

Industry

Hotel | Factory
Stadium/Event | Hospital
Port | Warehouse
Construction | Airport
University
Smart Building

Industry Digital Transformation

Enterprise IT Manager

Self-Service Portal
Network Slice Manager
Orchestration | AI Analytics
Closed Loop Automation

Physical 5G Network

Devices — **Logical 5G Network** — **Edge Computing (Vertical App.)**

Device	Slice	Edge
Drone (Move)	Slice 1: Drone Slice — <10ms, >20Mbps, Full Mobility	Drone Control Server
AGV (Move)	Slice 2: AGV Slice — <10ms, Kbps/10Mbps, Very Reliable	AGV Control Server
Video Surveilance	Slice 3: CCTV Slice — 100ms, >20Mbps	AI Video Analytics
AR/VR	Slice 4: AR/VR Slice — 2-10ms, 1G-100Mbps, Full Mobility	AR/VR Rendering Server
Sensor	Slice 5: IIoT Slice — 100ms, Kbps, Massive Connectivity	IIoT Server
Industry Automation	Slice 6: Robot Slice — 1ms, Kbps, Very Reliable, GBR	Robot Control server
Smartphone	Slice 7: Intranet Slice — Best Efforts, Full Mobility	Intranet Server

IEI's PUZZLE-IN005 Aim for 5G MEC

» **5G MEC Solution**

5G MEC is a network solution to providing IT service and telecommunication network at the edge. The PUZZLE-IN005 brings services closer to users, and provides ultra-low latency, high bandwidth, virtualization application and reliable network solution.

PUZZLE-IN005

Feature

- Dual Intel® 3rd Gen Xeon® Scalable processors (Code Named : ICE LAKE-SP)
- 20 x DDR4 R-DIMM / LR-DIMM memory
- 8 network module with PCIe gen4 x8 signal
- Intel® Quick-Assist Technology
- 4 x U.2 (PCIe x4) 2.5" SSD compatible with SATA
- 1+1 1200W CRPS redundant power supply
- 4+1 hot swappable system fans

Application

- Universal Customer Premise Equipment (uCPE)
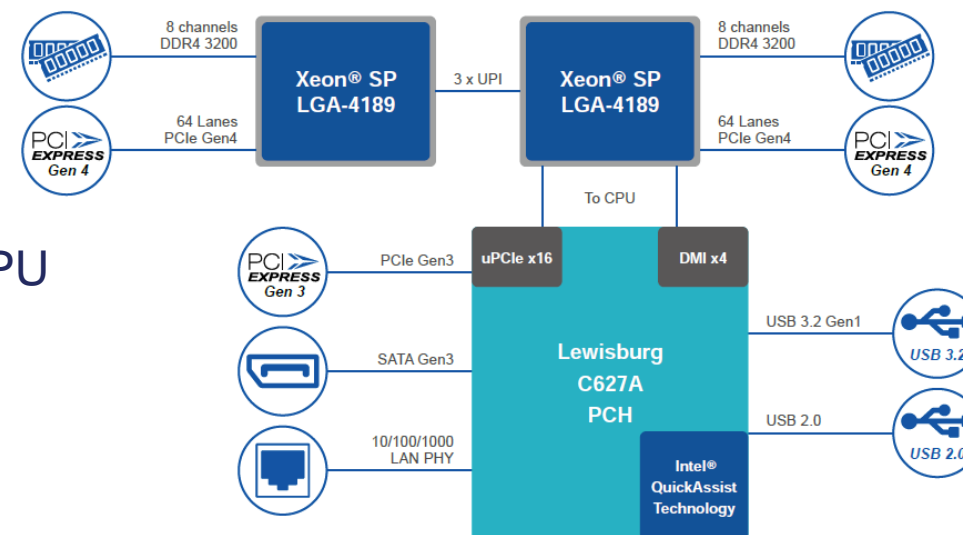- Multi-access Edge Computing (5G MEC)
- AI computing server

3rd Gen Intel® Xeon Scalable Processor (Ice Lake-SP)

Highlights

- First 10nm server grade Xeon CPU

- First PCIe Gen4 support, 64 lanes per CPU

- Increase the number of DDR4 memory channels from six to eight per CPU

- Integrate Intel Quick Assist Technology

	Family Branding	Process Node	Platform Name	Socket	Max Core Count	Max Thread Count	Memory Support	PCIe Gen Support	TDP Range	3D Xpoint Optane DIMM
3th Gen Xeon-SP	Ice Lake-SP	10nm+	Intel Whitley	LGA 4189	Up To 40	Up To 80	8-Channel DDR4-3200 Up to 6TB	PCIe 4.0 (64 Lanes)	Up To 270W	Barlow Pass
2th Gen Xeon-SP	Cascade Lake-SP	14nm++	Intel Purley	LGA 3647	Up To 28	Up To 56	6-Channel DDR4-2933 Up to 1 TB	PCIe 3.0 (48 Lanes)	Up to 205W	Apache Pass

Scalable Expansion Capability

» **Diverse Selections, Different Combinations**

The PUZZLE-IN005 is designed with eight network module expansion slots to add on different functions, bandwidths or even SSD for more storage needs. In addition, it has one PCIe x8 slot to adopt AI accelerating card or add-on cards for improving performance and efficiency.

1 x PCIe Gen4 x8
Accelerating AI Computing Performance

1 GbE to 100 GbE
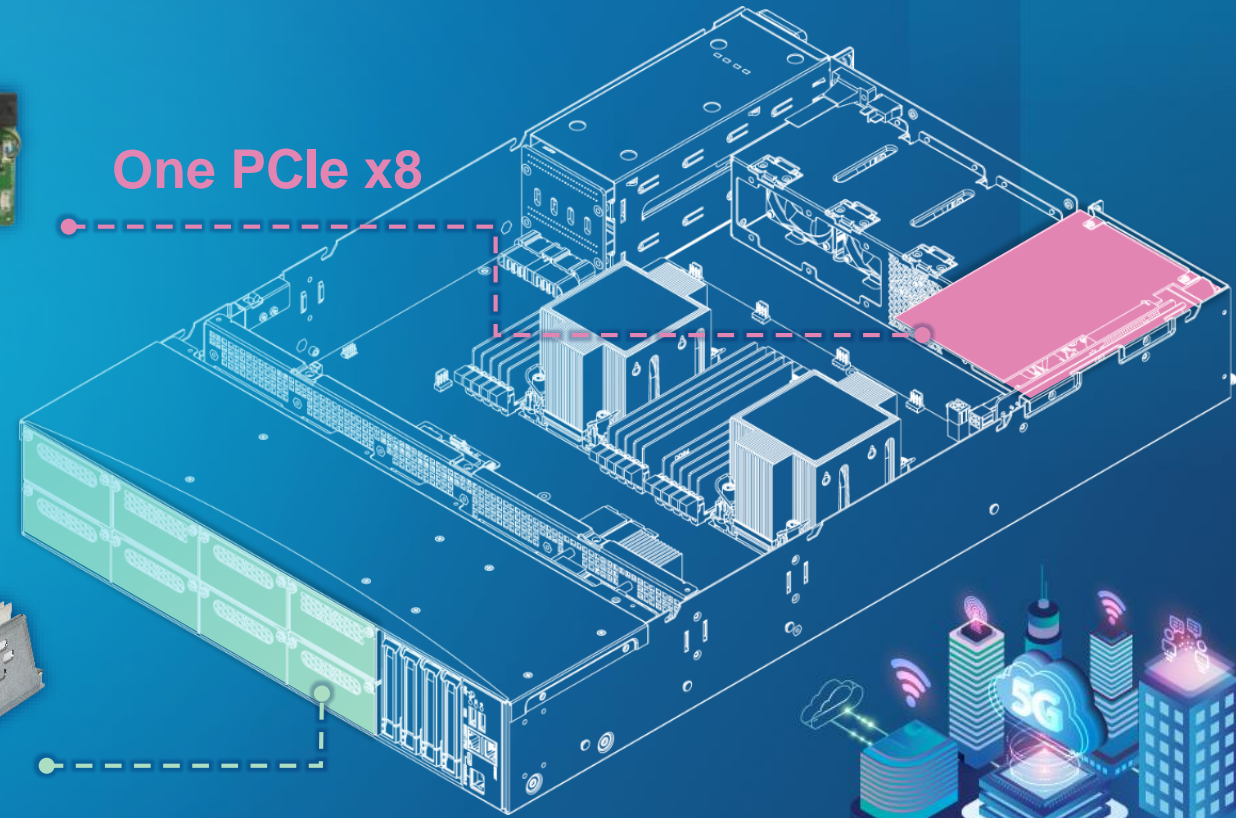Wide Bandwidth PulM Network Module Cards

8 x
Network Module Slots

One PCIe x8

8 Network Module Slots

RICH PuIM Module Selection

PuIM-100G2SF-E810

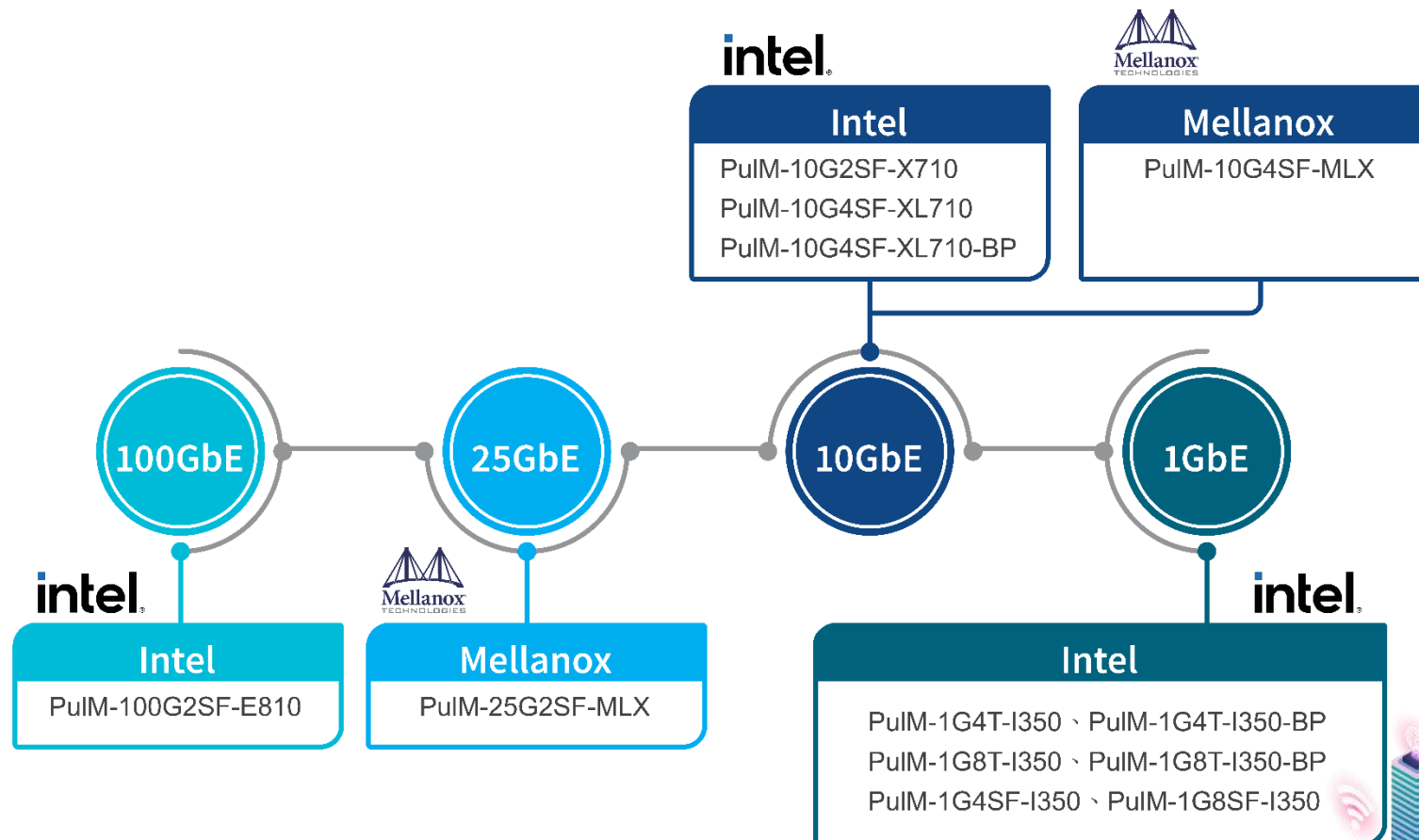
» 1 x Intel@ E810
» 2 x 100GbE QSFP28

PuIM-10G2SF-X710

» 1 x Intel@ X710-BM2
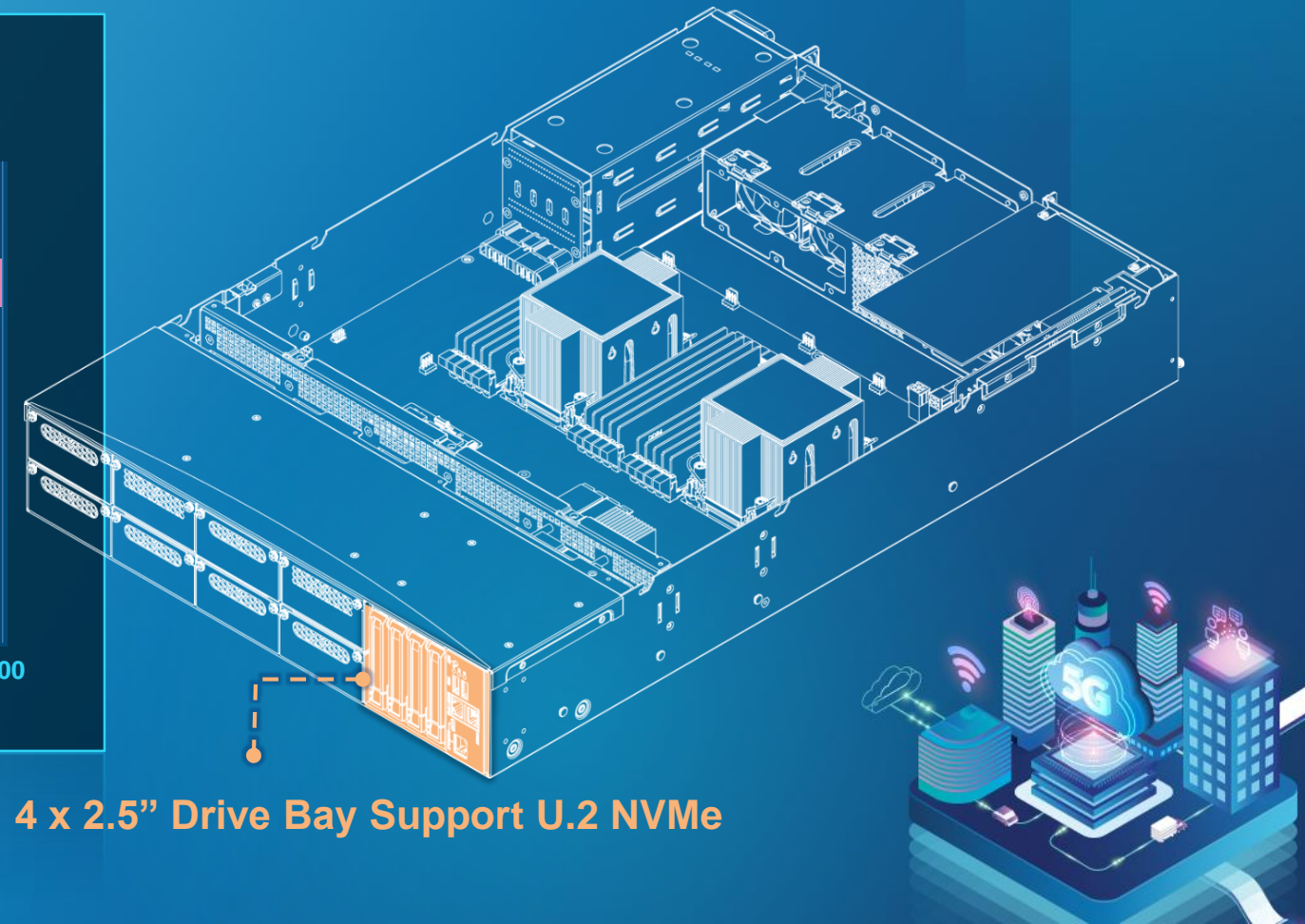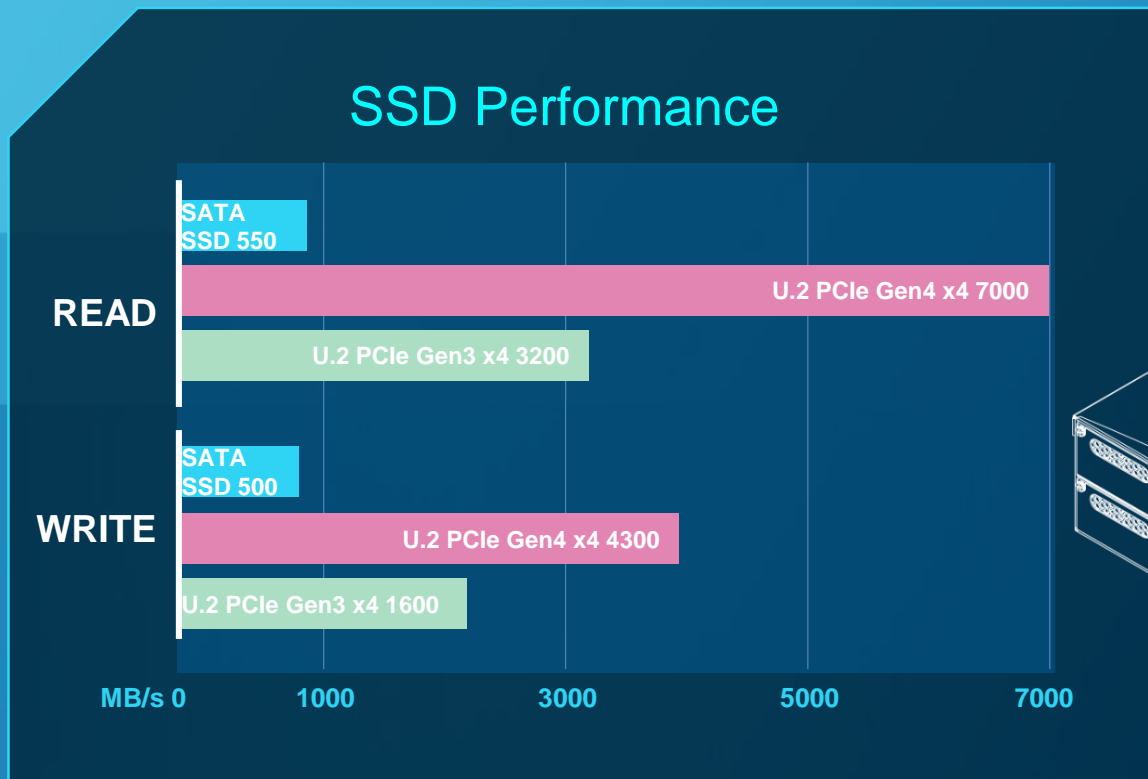» 2 x 10 GbE SFP+

PuIM-1G8T-I350-BP

» 2 x Intel@ I350-AM4
» 8 x GbE RJ45
» Bypass Function

intel

Intel
PuIM-10G2SF-X710
PuIM-10G4SF-XL710
PuIM-10G4SF-XL710-BP

Mellanox TECHNOLOGIES

Mellanox
PuIM-10G4SF-MLX

(100GbE)——(25GbE)——(10GbE)——(1GbE)

intel

Intel
PuIM-100G2SF-E810

Mellanox TECHNOLOGIES

Mellanox
PuIM-25G2SF-MLX

intel

Intel
PuIM-1G4T-I350、PuIM-1G4T-I350-BP
PuIM-1G8T-I350、PuIM-1G8T-I350-BP
PuIM-1G4SF-I350、PuIM-1G8SF-I350

High Speed Storage with U.2 NVMe

» The U.2 SSD interface features high-speed, low-latency and low-power NVMe standard protocol.

» PUZZLE-IN005 support PCIe 4.0 channel, the transmission speed is up to 7000MB/s while PCIe 3.0 U.2 is 3200MB/s, and SATA is 500MB/s, which is 2 times faster than PCIe 3.0 U.2 and 10 times faster than SATA.

SSD Performance

READ
- SATA SSD 550
- U.2 PCIe Gen4 x4 7000
- U.2 PCIe Gen3 x4 3200

WRITE
- SATA SSD 500
- U.2 PCIe Gen4 x4 4300
- U.2 PCIe Gen3 x4 1600

MB/s 0   1000   3000   5000   7000

4 x 2.5" Drive Bay Support U.2 NVMe

Conclusion of Advantages of IEI PUZZLE-IN005

Intel® QuickAssist Technology

Boost Encryption and Compression Performance

Expansion

Diverse Selections, Different Combinations

PCI EXPRESS 4.0 — PCIe 4.0

Double Bandwidth, Double Speed

nvm EXPRESS — NVM Express

U.2 nVMe provide extremely high speed of storage.

Network Solution

Cybersecurity
Next-Gen Firewall
IPS/IDS/Anti Virus/
SPAM/UTM

uCPE Solution
NFV & SDN
Intel® ISS (uCPE)
uCPE for ADVA

Edge Computing
Edge Server
AI Inference System
Management Server

Network Infrastructure
VPN & SD-WAN
Routers & Switch
ADC & Load Balance

► **Contact us**

More Product Information