



intel®

# Edge AI Systems

Unleashing the Power of Edge Computing

ASUS IoT

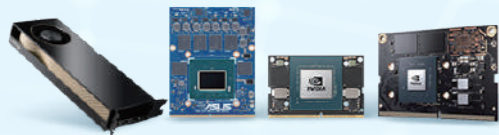
DIGICOR

# Revolutionize Computing Power with Edge AI Systems

## The Game-Changing Platform for AI Applications

ASUS IoT edge AI systems combine GPU computing with AIoT potential. They offer embedded MXM GPU modules from both NVIDIA® and Intel®, NVIDIA® Jetson-based platforms, and GPU computing platforms for diverse market needs. With unparalleled performance, they enable real-time AI inferencing at the edge, transforming industries. Designed with a rugged, fanless, anti-vibration build, wide temperature support and low power consumption, they excel in demanding edge AI applications like factory automation, machine vision, video analytics, and autonomous vehicles. ASUS IoT ensures robustness and reliability for the most challenging scenarios, driving innovation and efficiency in this new era.

### Powerful & Scalable GPU Computing



ASUS IoT pioneers the industry's first edge AI system that supports up to dual 450-watt TDP GPUs. ASUS IoT systems benefit from support for Intel Arc™ A-series MXM, NVIDIA PCIe® GPU cards, and Jetson SoM, offering a choice of power-efficient options through to extreme high-throughput solutions.

### Latest Computing Platform



ASUS IoT edge AI systems are available in a variety of form factors embedded with the latest Intel 13th/12th Gen CPUs and NVIDIA Jetson Orin™ series, meeting the dynamic requirements of the market.

### Exclusive Thermal Design



The patented system design effectively diffuses heat from the CPU, GPU, and all peripherals, delivering extreme ruggedness with a fanless structure. This ensures stable operation while the fanless design further reduces dust generation and thus enhances durability.

### Robust Power Design



Innovative high-current tolerance power design ensures extreme reliability under a wide range of DC inputs and power-hungry GPU computing. Support for ignition power control adds further stability.

### Industrial Feature Set & Rich I/O



Supports PoE, isolated DIO, multiple COM ports, CAN bus, and more, enabling seamless connectivity for a wide range of applications.

### Anti-vibration Design



With a robust mechanical design featuring structured support, GPU retainer, cable screw lock, and damping bracket, ASUS IoT edge AI systems excel at in-vehicle situations for smooth and uninterrupted operation.

### Certification Compliance



Rest assured with our system-validated certification readiness. Our edge AI systems comply with MIL-STD 810H and offer vibration resistance up to 5 GRMS.

### Software Support for Easy Integration

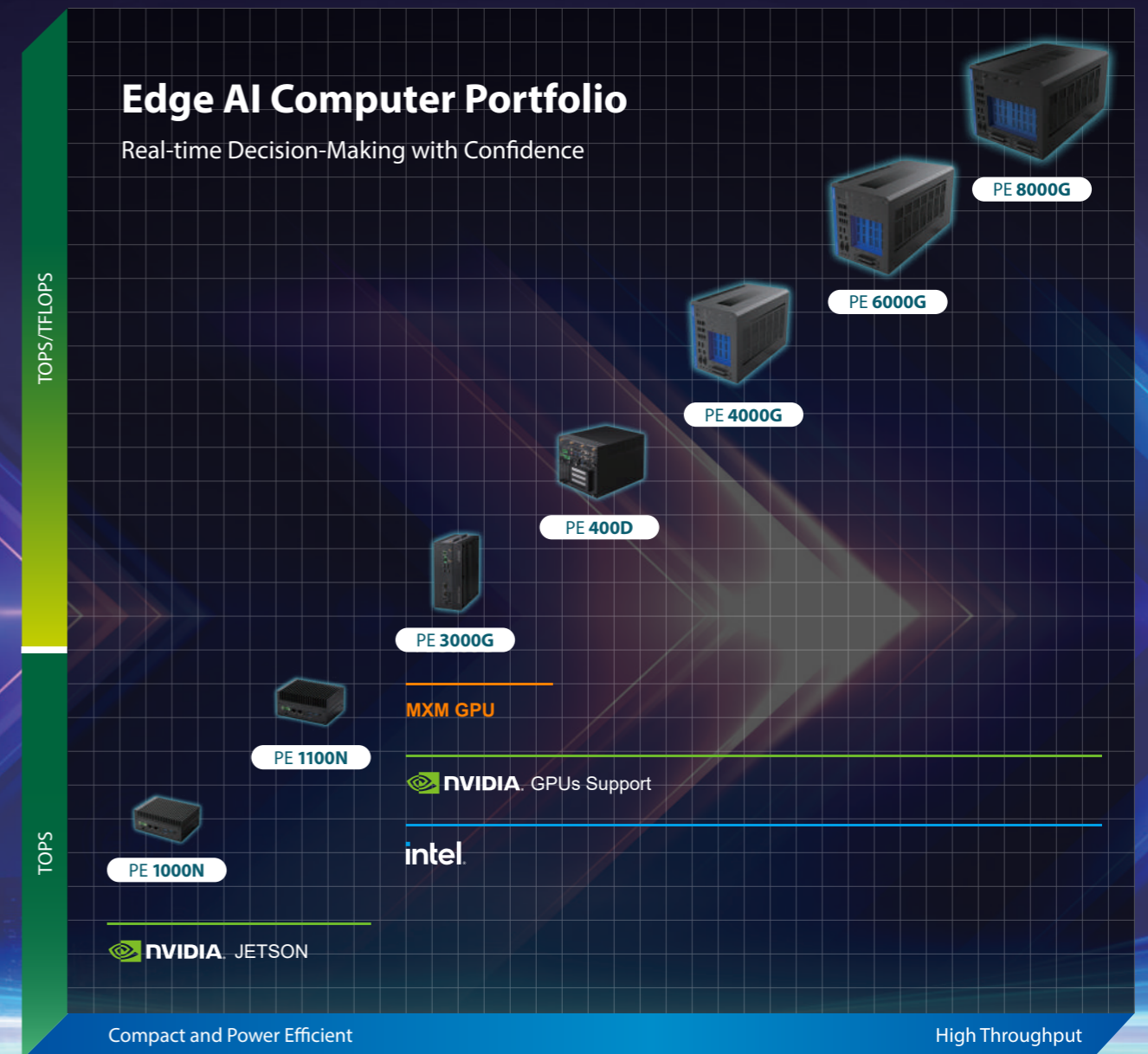


Simplify the integration process with comprehensive software support, including APIs, middleware, and device control toolkits tailored for various vertical applications.

Full Spectrum of

# Edge AI Systems & Applications

ASUS IoT offers a comprehensive portfolio of edge AI systems to address the diverse range of market applications. Powered by embedded MXM GPU modules from both NVIDIA® and Intel®, and PCI Express graphics cards based on NVIDIA® Quadro GPUs, as well as edge AI platforms utilizing NVIDIA® Jetson™ modules and other embedded form factors, these systems are designed to accelerate edge computing and AI workloads. With a focus on performance, long lifecycle, power consumption, and form factor, ASUS IoT provides a full spectrum of solutions to meet various embedded requirements. Whether it's high-performance computing or specific form factors, our edge AI systems deliver the power and flexibility needed to excel in diverse applications.



## Target Applications



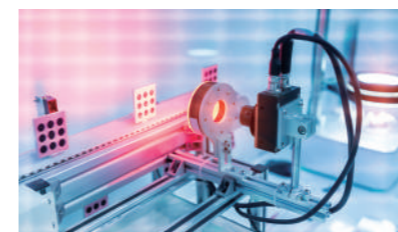
Traffic Management



AMR



Smart City



Machine Vision



Autonomous Driving



AI Inference & Training

# Product Selection



		PE3000G	PE400D	PE4000G	PE6000G	PE8000G	
Case	Dimension	240 x 230 x 125.7 mm	176.6 x 210 x 250 mm	225 x 190 x 350 mm	225 x 221 x 443 mm	225 x 288 x 443 mm	
	Weight	8.2 kg	6.8 kg	8 kg	9.2 KG	Coming soon	
	Chassis construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	
System :	Processor	Intel® Core™ i7-12800HE Intel® Core™ i5-12600HE Intel® Core™ i3-12300HE	Intel® Xeon® W-1290TE Intel® Core™ i9-10900E Intel® Core™ i7-10700E Intel® Core™ i5-10500E Intel® Core™ i3-10100E	Intel® Core™ i9-12900E/ i9-12900TE Intel® Core™ i7-12700E/ i7-12700TE Intel® Core™ i5-12500E/ i5-12500TE Intel® Core™ i3-12100E/ i3-12100TE	Intel® Core™ i9-12900E/ i9-12900TE Intel® Core™ i7-12700E/ i7-12700TE Intel® Core™ i5-12500E/ i5-12500TE Intel® Core™ i3-12100E/ i3-12100TE	Intel® Core™ i9-12900E/ i9-12900TE Intel® Core™ i7-12700E/ i7-12700TE Intel® Core™ i5-12500E/ i5-12500TE Intel® Core™ i3-12100E/ i3-12100TE	
	Chipset	-	W480E	R680E	R680E	R680E	
	Graphics	Intel® Iris® Xe Graphics (i7/i5) Intel® UHD Graphics (i3)	Intel® UHD Graphics 630	Intel® UHD Graphics 770	Intel® UHD Graphics 770	Intel® UHD Graphics 770	
	Memory	2 x SO-DIMM, up to 64GB DDR5 SDRAM	2 x SO-DIMM, up to 64GB ECC/ non-ECC DDR4 SDRAM (ECC only for Xeon CPU)	2 x SO-DIMM, up to 64GB ECC/ non-ECC DDR5 SDRAM	2 x SO-DIMM, up to 64GB ECC/ non-ECC DDR5 SDRAM	2 x SO-DIMM, up to 64GB ECC/ non-ECC DDR5 SDRAM	
	PoE	4x PoE + (optional)	-	-	-	-	
I/O Interface	Ethernet	3 x Intel® i226 (2.5 GbE) 1 x Intel® i219-LM(1 GbE)	3 x Intel® i210-T (1 GbE)	1x Intel® i219 (1 GbE) 1x Intel® i226 (2.5 GbE)	1x Intel® i219 (1 GbE) 1x Intel® i226 (2.5 GbE)	1x Intel® i219 (1 GbE) 1x Intel® i226 (2.5 GbE)	
	Display port	2x HDMI 2x DP++ 4X DP (with MXM GPU card)	1 x HDMI 2.0 1 x HDMI 1.4 1 x DP	2x HDMI 2x DP++	2x HDMI 2x DP++	2x HDMI 2x DP++	
	Serial port	2 x COM: RS-232/422/485, DB9 2 x COM: RS-232, DB9 (optional)	3 x COM: RS-232/422/485, DB9 1 x COM* : RS-232/422/485, CAN Bus (2.0A/B), DB9 *Default RS-232, configured to CANBus by onboard jumper	2x COM: RS-232/422/485 4x COM: RS-232, DB9 (optional)	2x COM: RS-232/422/485 4x COM: RS-232, DB9 (optional)	2x COM: RS-232/422/485 4x COM: RS-232, DB9 (optional)	
	USB 3.2 / 3.1	3x USB 3.2 Gen2x1 (10G), type A	2 x USB 3.2 Gen2, type A 4x USB 3.2 Gen1, type A	1x USB 3.2 Gen2x2 (20G), type C 4x USB 3.2 Gen2x1 (10G), type A 2x USB 3.2 Gen1 (5G), type A	1x USB 3.2 Gen2x2 (20G), type C 4x USB 3.2 Gen2x1 (10G), type A 2x USB 3.2 Gen1 (5G), type A	1x USB 3.2 Gen2x2 (20G), type C 4x USB 3.2 Gen2x1 (10G), type A 2x USB 3.2 Gen1 (5G), type A	
	USB 2.0	1x USB 2.0, type A	-	2x USB2.0, type A	2x USB2.0, type A	2x USB2.0, type A	
	Audio	Mic in; Line out	Mic in; Line out	Mic in; Line out	Mic in; Line out	Mic in; Line out	
	Digital I/O	4x DI, 4 x DO support isolation	4x DI, 4 x DO support isolation	4x DI, 4 x DO support isolation	4x DI, 4 x DO support isolation	4x DI, 4 x DO support isolation	
	Storage interface	SATA HDD	2 x hot-swappable 2.5" HDD/ SSD trays	2 x hot-swappable 2.5" HDD/ SSD trays	2 x hot-swappable 2.5" HDD/ SSD trays	4 x hot-swappable 2.5" HDD/ SSD trays	4 x hot-swappable 2.5" HDD/ SSD trays
		mSATA	-	1	1	1	1
		M.2 (M-key)	1	1	1	1	1
M.2 (E-key)		1	1	1	1	1	
Expansion	M.2 (B-key)	1	-	2	2	2	
	mPCIe	1	1	1	1	1	
	SIM	1	2	3	3	3	
	PCI/ PCIe	1x PCIe slot (1 x PCIe x8 Gen4 for MXM GPU card)	4 x PCIe slots (1 x PCIe x16 + 1 x PCIe x4 or 2 x PCIe x8 + 1 x PCIe x4, auto-detect)	4 x PCIe slots (1 x PCIe x16 Gen4 + 2 x PCIe x4 or 2 x PCIe x8 Gen4 + 2 x PCIe x4, auto-detect)	5 x PCIe slots (1 x PCIe x16 Gen4 + 3 x PCIe x4 or 2 x PCIe x8 Gen4 + 3 x PCIe Gen4 x4, auto-detect)	7 x PCIe slots (1 x PCIe x16 Gen4 + 3 x PCIe x4 Gen3 + 2 x PCIe x1 Gen3 or 2 x PCIe x8 Gen4 + 3 x PCIe x4 Gen3 + 2 x PCIe x1 Gen3)	
	Power supply	DC Input	8-48V DC	9-36V DC	8-48V DC	8-48V DC	8-48V DC
Ignition Control		Integrated	-	Integrated	Integrated	Integrated	
Operating Temperature		-20 ~ 60°C (w/ 50W MXM, 45W CPU)	-20~60°C	-20~60°C with 35W CPU -20~55°C with 65W CPU	-20~60°C with 35W CPU -20~55°C with 65W CPU	-20~60°C with 35W CPU -20~55°C with 65W CPU	
Environmental	Certification	CE, FCC, CB, BSMI	CE (IEC 61000-6-2/4), FCC, VCCI, RCM, CCC, BSMI, UL, CB	CE, FCC, CB, BSMI	CE, FCC, CB, BSMI	CE, FCC, CB, BSMI	
	Shock & Vibration	MIL-STD 810H; Vibration during operation: 5-500 Hz, 5 Grms, 3 Axes	Vibration: 0.5 Grms, sine, 5-500 Hz Shock: 50 Grms, half sine, 11ms	MIL-STD 810H; Vibration during operation: 5-500 Hz, 3 Grms, 3 Axes	MIL-STD 810H	MIL-STD 810H	



		PE1100N Series				PE1000N Series		
System	SoC/SOM	Jetson Orin Nano 4G	Jetson Orin Nano 8G	Jetson Orin NX 8G	Jetson Orin NX 16G	Jetson Nano™	Jetson TX2 NX	Jetson Xavier™ NX
	CPU	6 x Arm® Cortex®-A78AE v8.2			8 x Arm® Cortex®-A78AE v8.2	4 x Arm® Cortex®-A57	2 x NVIDIA Denver 2 64-Bit 4 x Arm® Cortex®-A57	6 x NVIDIA Carmel Arm®v8.2 64-bit
	GPU	512-core NVIDIA Ampere GPU with 16 Tensor Cores	1024-core NVIDIA Ampere GPU with 32 Tensor Cores			128-core NVIDIA Maxwell™	256-core NVIDIA Pascal™ GPU	384-core NVIDIA Volta™ with 48 Tensor Cores
	Memory	4 GB 64-bit LPDDR5	8 GB 128-bit LPDDR5	8 GB 128-bit LPDDR5	16 GB 128-bit LPDDR5	4 GB 64-bit LPDDR4	4 GB 128-bit LPDDR4	8 or 16 GB 128-bit LPDDR4x
Wired Interface	Ethernet	2 x 10/100/1000 Mbps, RJ45				2 x 10/100/1000 Mbps, RJ45		
	USB (or header)	3 x USB 3.2 Gen1, Type-A 1 x USB 2.0, Micro-USB for OS Flash 2 x USB 2.0, Pin Header (Internal)				3 x USB 3.2 Gen1, Type-A 1 x USB 2.0, Micro-USB for OS Flash 2 x USB 2.0, Pin Header (Internal)		
	COM	2 x RS-232/422/485, DB9 1 x CAN bus, DB9				2x RS-232/422/485, DB9	2 x RS-232/422/485, DB9 1 x CAN bus, DB9	
	DIO	4 x DI, 4 x DO (2x5 Terminal Block, w/ isolation)				4 x DI, 4 x DO (2x5 Terminal Block, w/ isolation)		
	Display	1 x HDMI 1.4a 3840 x 2160 @30Hz		1 x HDMI 2.0b 3840 x 2160 @60Hz		1 x HDMI 2.0b 3840 x 2160 @60Hz		
	Debug Port	1 x Debug console via Micro-USB				1 x Debug console via Micro-USB		
	Wireless Interface	Wi-Fi	Optional				Optional	
Bluetooth		Optional				Optional		
Cellular		Optional				Optional		
GPS		Optional				Optional		
Expansion		M.2 M key	1 x 2242/2260/2280, for M.2 SSD (PCIe, OS disk, size option)				1 x 2242/2260/2280, for AEM, M.2 SSD (PCIe, I2C and SMBus)	
	M.2 E key	1 x 2230, for Wi-Fi/BT (PCIe, USB 2.0, I2C and PCM)				1 x 2230, for Wi-Fi/BT (PCIe, USB 2.0, I2C and PCM)		
	M.2 B key	1 x 3042/3052, for 4G/5G (PCIe, USB 2.0/3.0)				N/A		
	Mini PCIe	N/A				1 x Full-Length socket, for 4G/LTE (USB 2.0)		
Slot	SIM	2 x nano-SIM slots				2 x nano-SIM slots		
	Micro SD	N/A				1 x Micro SD slot		
Power	Power Input	12 to 24 VDC, 3-pin terminal block (1-pin for remote button)				12 to 24 VDC, 3-pin terminal block (1-pin for remote button)		
Mechanical	Mounting	Wall-mount (support assembly with DIN rail clips)				Wall-mount (support assembly with DIN rail clips)		
	Dimensions	Board: 3.5", 146 x 105 mm System: 152 x 114 x 72 mm				Board: 3.5", 146 x 105 mm System: 152 x 114 x 62 mm		
	Weight	1.4 KG				1.4 KG		
Environment	Operating Temp.	-20 ~ 50°C				-20~60°C		
	Operating Humidity	5~95% (non-condensing, IEC standard)				10~95% (non-condensing, IEC standard)		
	Storage Temp.	-40~85°C				-40~85°C		
	Relative Humidity	10 to 95% (non-condensing)				10 to 95% (non-condensing)		
Security	TPM	on-board TPM v2.0				on-board TPM v2.0		
Others	Watch Dog Timer	Yes. HW WDT				Yes. HW WDT		
	Operating System	Ubuntu				Ubuntu		

## Why ASUS IoT



**Innovative Technology  
& Flexible Design**



**Exclusive Technical  
Support**



**Strong partnerships  
with Tier 1 suppliers**

## About ASUS IoT

ASUS IoT is a sub-brand of ASUS dedicated to the creation of incredible solutions in the fields of AI and IoT. Our mission is to become a trusted provider of embedded systems and partner to the wider AIoT solutions ecosystem. ASUS IoT strives to deliver best-in-class products and services across diverse vertical markets, and to partner with customers in the development of fully integrated and rapid time-to-market applications that drive efficiency – providing convenient, efficient and secure living and working environments for people everywhere.



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