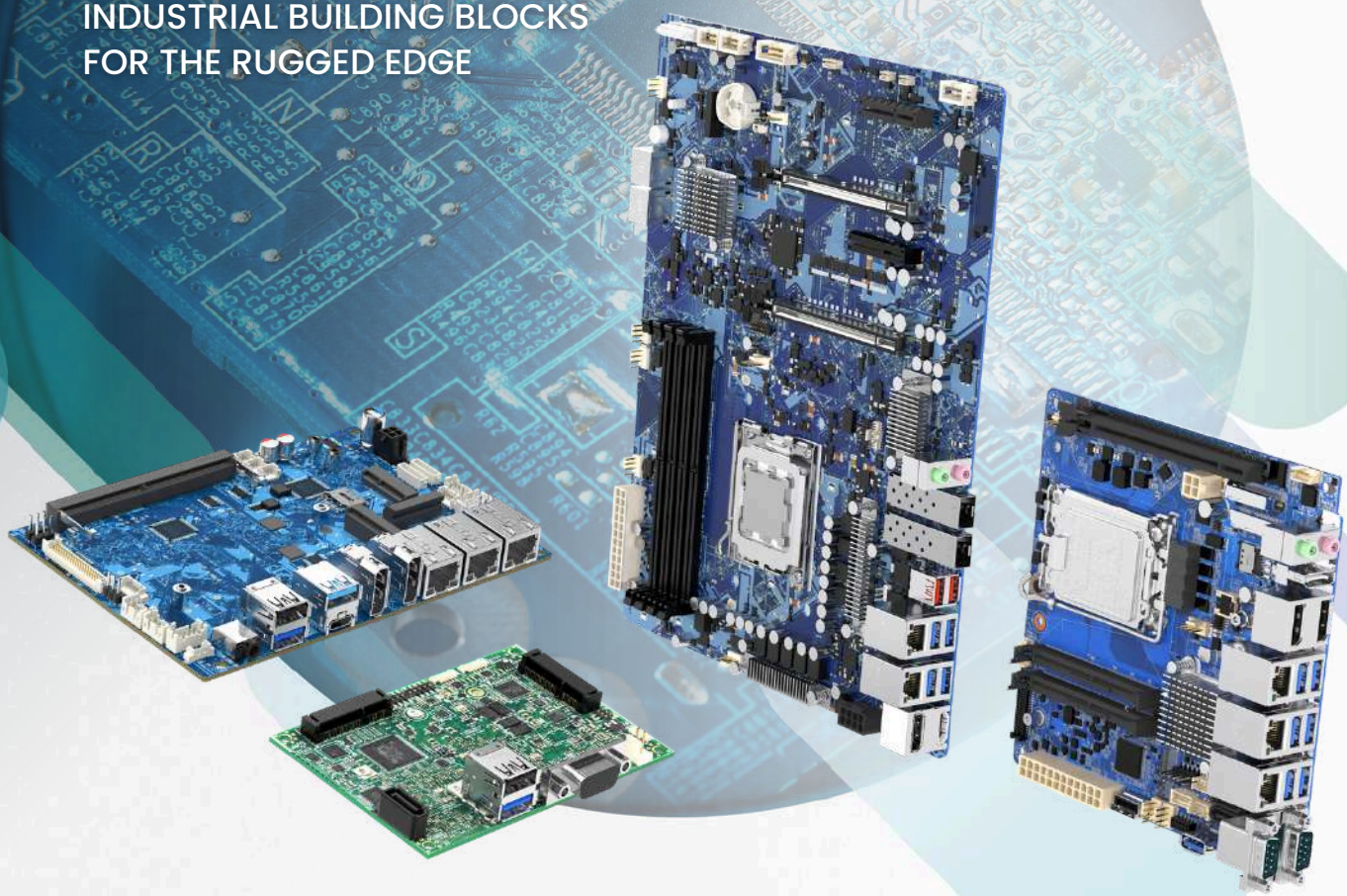
premio

BOARD SERIES

INDUSTRIAL MOTHERBOARDS & SINGLE BOARD COMPUTERS

INDUSTRIAL BUILDING BLOCKS
FOR THE RUGGED EDGE



ATX SERIES
HIGH-PERFORMANCE
INDUSTRIAL MOTHERBOARD

MICRO-ATX SERIES
RICH EXPANSIONS
INDUSTRIAL MOTHERBOARD

MINI-ITX SERIES
RICH I/O
INDUSTRIAL MOTHERBOARD

3.5" SERIES
3.5-INCH
SFF INDUSTRIAL SBC

2.5" SERIES
PICO-ITX
COMPACT INDUSTRIAL SBC

1.8" SERIES
FEMTO-ITX
MINI INDUSTRIAL SBC

Industrial-Grade Durability

Standardized Form Factors

intel AMD

Intel & AMD Processor Support

Wide Operating Temperature Range

INDUSTRIAL BOARD SOLUTIONS

Premio's Line of Industrial Motherboards & Single Board Computers

Premio's line of industrial motherboards and single board computers delivers reliable embedded computing platforms with flexible form factors, rich I/O connectivity, and long-term availability for demanding industrial applications. From OEM/ODM system designs to embedded edge deployments, Premio provides off-the-shelf industrial-grade solutions with the flexibility to support custom configurations and evolving application requirements.

We also provide end-to-end engineering services to support configuration requirements and solve mechanical design challenges. From full custom solutions to small I/O modifications, we can customize each platform to meet your specifications without compromising performance.

Key Markets Applications

Designed for demanding industrial applications, Premio's motherboard and SBC platforms deliver reliable performance, flexible expansion, and long-term availability for embedded edge systems. Key market verticals that benefit from these powerful boards include industrial automation, smart retail and kiosks, digital signage, medical imaging, and more.

Industrial Automation

Embedded Computing

Smart Retail & Kiosks

Digital Signage

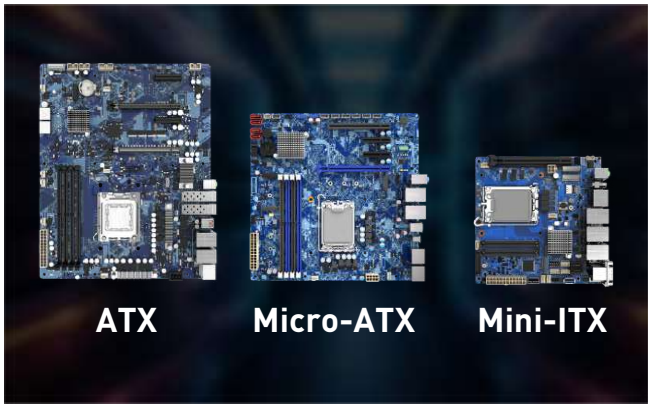
Medical Imaging

Industrial IoT

Wide Range of Embedded Form Factors

A motherboard is the main printed circuit board, and as the name suggests, it is the 'mother' piece that allows for communication between many of the crucial electrical components in a computer system. That is why Premio offers a variety of off-the-shelf motherboards and single board computers with different form factors to help meet all the various demands at the rugged edge.

Industrial Motherboards



ATX

The largest of the three standard form factors, ATX is designed for systems requiring maximum PCIe expansion, memory capacity, storage, and networking flexibility.

- Maximum expansion and scalability
- Multiple PCIe slots for GPUs, NICs, and accelerators
- Greater memory and storage capacity
- Best suited for data-intensive and high-bandwidth systems

Micro-ATX

Micro-ATX balances expansion capability with a smaller system footprint, making it well suited for industrial automation, machine vision, and edge computing.

- Approximately 20% smaller footprint than ATX
- Supports up to four expansion slots
- Balanced memory, storage, and industrial I/O
- Suitable for scalable mid-size systems

Mini-ITX

Mini-ITX delivers modern compute and essential expansion within a compact 170 × 170 mm footprint.

- Compact integration for space-constrained systems
- Typically one PCIe expansion slot
- High-density onboard I/O and M.2 connectivity
- Suitable for embedded systems, kiosks, and IoT gateways

Single Board Computers

3.5" Single Board Computer

3.5-inch SBCs balance processing performance, rich industrial I/O, and onboard expansion in a compact footprint. They provide OEMs with flexible building blocks for industrial automation, machine vision, IoT gateways, and other embedded systems.

- Broad x86 processor support
- Rich industrial I/O and onboard expansion
- Flexible memory, storage, and display options
- Ideal for performance-focused embedded systems

2.5" PICO-ITX

PICO-ITX SBCs bring x86 computing to space-constrained embedded designs in a compact 100 × 72 mm footprint.

- Compact integration for devices with limited enclosure space
- Low-power x86 SoC processing
- Onboard I/O and expansion for embedded connectivity
- Suitable for compact IoT gateways, controllers, and OEM devices

1.8" FEMTO-ITX

FEMTO-ITX delivers industrial-grade x86 computing in an ultra-compact form factor for space-constrained embedded and IoT applications. Its extremely small size provides x86 processing and data telemetry for the most space constrained deployments.

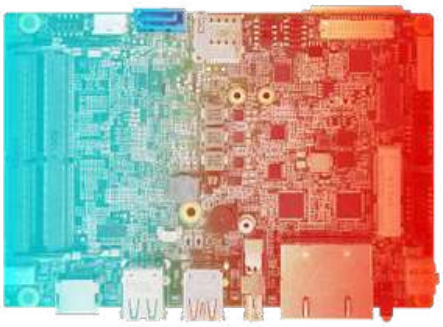
- Supports x86 system-on-chip (SoC) processors
- Low-Power Consumption
- OEM building block for embedded computing design

	ATX	Micro-ATX	Mini-ITX	3.5” SBC	2.5" PICO-ITX	1.8” FEMTO-ITX
Dimension	12 × 9.6 in	9.6 × 9.6 in	6.7 × 6.7 in	5.7 × 4 in	3.9 × 2.8 in	3.3 × 2.1 in
Processor	Intel or AMD	Intel	Intel	Intel or AMD	Intel	AMD
Socket Design	Socket CPU			System-On-Chip (Soc)		
Expansion	Highest expansion; typically supports multiple PCIe slots: • 2-3× PCIe x16 • 2-3× PCIe x1	Moderate expansion; up to 4 expansion-slot positions: • 1-2x PCIe x16 • 1× PCIe x4 • 1-2× PCIe x1	Limited expansion; typically, 1 PCIe slot: • 1× PCIe x16	Typically, 2× Half-sized mini PCIe	Limited onboard expansion, such as Mini PCIe or mSATA, depending on the model	Typically, 1× Mini PCIe
Architecture	x86					

Industrial Grade Design

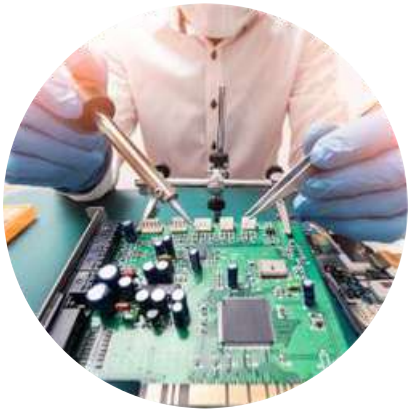
Premio's motherboards and Single Board Computers are engineered to meet rigorous industrial standards to ensure exceptional durability and longevity in harsh industrial environments. Built with durability and reliability in mind, these rugged-ready solutions ensure optimal performance even in extreme conditions.

- Wide Operating Temperature
- Industrial-Grade Components
- Extended Longevity
- World-Class Safety Certifications



▲ Suitable for operation at high and low temperatures

Built with safety-complaint, industrial-grade compenents ▼



▲ Stable and long-lasting operation

We Design, Manufacture, and Service Customers Around the World

CHICAGO
CALIFORNIA (HQ)
TAIWAN (HQ)
MALAYSIA

BOARD ATX SERIES

AMD

intel

Model	CT-AR701	CT-ARL01
Processor	AMD Ryzen™ 9000/7000 Series Desktop CPUs & EPYC™ 4005/4004, up to 170W TDP	Intel® Core™ Series 2 Bartlett Lake-S/14th/13th/12th Gen Intel® Core™ Processors
Chipset	AMD B650	Intel® R680E Chipset
Memory	4x 288-pin Dual-Channel DDR5 UDIMM, Max. up to 192GB (Non-ECC)	4× DDR5-4400 ECC/non-ECC UDIMM slots, up to 128GB
Display Output	1x DP 1.4a (4096x2304@60Hz), 1x HDMI 2.0 (4096x2160@60Hz); dual independent displays	3 independent displays: 1x DP (4096x2160@60Hz), 1x HDMI (4096x2304@60Hz), 1x VGA (1920x1200@60Hz).
Storage	4x SATA 3.0 (AHCI), 2x M.2 M-Key (2280, PCIe x2)	4x SATA 3.0 (RAID 0/1/5/10), 2x M.2 M-Key (1 from CPU, 1 shared with PCIe Slot 5).
Expansion Slots	2x PCIe x16 Gen5 supported, 1x PCIe x4 (open-end), 1x PCIe x1	PCIe Slots: 2x PCIe x16 (Gen5, configurable as x16 or dual x8), 4x PCIe x4, 1x PCIe x1.
M.2 Expansion	1x M.2 M-Key (PCIe x4, NVMe), 1x M.2 E-Key 2230 (PCIe x1 + USB 2.0)	M.2 Slots: 2x M-Key, 1x E-Key (PCIe x1), 1x B-Key (PCIe x2).
LAN	2x 1GbE (Intel® I210AT, RJ-45) + 2x 10GbE (Broadcom BCM57412, SFP+)	4x 2.5GbE (Intel® I225-LM).
I/O Ports	Rear: USB 3.2 Gen2 Type-A, DP+HDMI stack, Audio jack, LAN; Internal USB headers supported	Rear I/O: 8x USB 3.2 Gen2, 1x DP, 1x HDMI, 1x VGA, 1x Mic-in, 1x Line-out, 1x PS/2.
Internal I/O	Multiple USB headers, TPM 2.0, GPIO, fan headers, OOB connector, watchdog	Internal: 2x USB 3.2 Gen1, 3x USB 2.0, 6x COM (RS-232/422/485), GPIO (16-bit), SMBus, I C, PMBus.
Operating System	Windows 10/11 Linux, Ubuntu 22.04 / 24.04 LTS	Windows 10 IoT Enterprise 2021 LTSC, Windows 11 IoT Enterprise 22H2, Linux Kernel 5.xx, Ubuntu 22.04 LTS.
Power	ATX power: 1 x 24P ATX-Power Connector, 1 x 8P 12V ATX-Power Connector	ATX-Power 24-Pin + 12V-8Pin; ACPI 5.0; Watchdog Timer; TPM 2.0 (Infineon SLB9672).
Operating Temperature	Operating 0 to 60°C, Storage -20 to 80°C, 10-90% RH (non-condensing)	Operating Temp: 0 to 60°C Storage: -20 to 80°C, Humidity: 10-90% RH.
Certifications	CE, FCC Class-B	Certifications: CE, FCC Class-B, DSMI, RCM, VCCI.
Form Factor	305 x 244 mm	

* The CT-ARL01 Series is available exclusively in the North Americas, contact sales@premioinc.com for more information.

USA 918 Radecki Ct., City of Industry, CA 91748
TW 176 Jianyi Rd., Zhonghe Dist., New Taipei City
800.977.3646
886-2-7731-7888
sales@premioinc.com
premioinc.com

We Design, Manufacture, and Service Customers Around the World

CALIFORNIA (HQ)
CHICAGO
TAIWAN (HQ)
MALAYSIA

BOARD MICRO-ATX SERIES

intel

Model	CT-MBL01	CT-MRL01
Processor	12th/13th/14th Gen Intel® Core™ Ultra / Core™ (Alder Lake-S / Raptor Lake-S / Bartlett Lake-S), up to 65W	12th/13th/14th Gen Intel® Core™ i9/i7/i5/i3 (65W, LGA1700)
Chipset	Intel® Q670E	
Memory	4x DDR5 4400 MT/s UDIMM, up to 128GB	4x DDR4 DIMM (2133–2666MHz), max 128GB
Display Output	4x DP++ (quad-display support)	4x DP++ (quad-display support)
Storage	2x M.2 M-Key NVMe/SATA (2242/2260/2280), 4x SATA	2x M.2 M-Key NVMe/SATA (2242/2260/2280), 4x SATA
Expansion Slots	1x PCIe x16 Gen5, 1x PCIe x16 Gen4 (4-lane), 1x PCIe x4 Gen4, 1x PCIe x4 Gen3	1x PCIe x16 Gen5, 1x PCIe x16 Gen4 (4-lane), 1x PCIe x4 Gen4, 1x PCIe x4 Gen3
LAN	1x 1GbE (Intel® I226LM), 1x 2.5GbE (Intel® I226-V)	1x 1GbE (Intel® I219LM), 1x 2.5GbE (Intel® I225-V)
I/O Ports	6x USB 3.1 Gen2, 1x USB-C Gen2x2, 2x USB 3.0 (internal), 4x USB 2.0 (internal), 6x RS-232, Audio, 8-bit DIO	6x USB 3.1 Gen2, 1x USB-C Gen2x2, 2x USB 3.0 (internal), 4x USB 2.0 (internal), 6x RS-232, Audio, 8-bit DIO
Operating System	Windows 10/11 IoT Enterprise LTSC, Linux Kernel 5.X	Windows 10/11, Linux Kernel 5.x
Power	ATX power, ACPI 5.0, dual 12-pin + 2-pin headers	ATX power, ACPI 5.0, dual 12-pin + 2-pin headers
Operating Temperature	Operating: 0°C to 60°C; Storage: −40°C to 85°C; 10–90% RH	Operating: 0°C to 60°C; Storage: −40°C to 85°C 10–90% RH
Form Factor	244 x 244 mm	

USA 918 Radecki Ct., City of Industry, CA 91748
TW 176 Jianyi Rd., Zhonghe Dist., New Taipei City
800.977.3646
886-2-7731-7888
sales@premioinc.com
premioinc.com

We Design, Manufacture, and Service Customers Around the World

CALIFORNIA (HQ)
CHICAGO
TAIWAN (HQ)
MALAYSIA

BOARD MINI-ITX SERIES

intel

Model	CT-XAR01	CT-XRL02
Processor	Intel® Arrow Lake-S Core Ultra 9/7/5 Series (65W, LGA1851)	Intel® 12th/13th/14th Gen Core™ i9/i7/i5/i3 (65W, LGA1700)
Chipset	Intel® W880	Intel® Q670E
Memory	2x DDR5 5600 SO-DIMM, ECC/Non-ECC, max 96GB	2x DDR4 3200 SO-DIMM, max 64GB
Display Output	2x DP, 1x HDMI, 1x LVDS/eDP (Quad Display)	2x DP, 1x HDMI (Triple Display)
Storage	1x M-key (PCIe x4 NVMe, SATA-3.0), 2280, 2x SATA-3.0 (RAID 0/1)	1x M.2 M-Key NVMe (Gen3), 3x SATA 6Gb/s (RAID 0/1/5)
Expansion Slots	1x PCIe x16 (Gen5), 1x M.2 E-Key, 1x M.2 B-Key	1x PCIe x16 (Gen4 via golden-finger riser), 1x M.2 E-Key, 1x M.2 B-Key (with Nano SIM)
LAN	3x 2.5GbE (Intel® I226 series)	
I/O Ports	6x USB 3.2 Gen2, 2x COM RS-232/422/485, Audio Line-out/Mic-in	6x USB 3.2 Gen2, 2x USB 3.2 Gen1 (internal), 2x USB2.1 (internal), 2x COM RS-232/422/486, Audio
Operating System	Windows 10/11 IoT Enterprise, Ubuntu 22.04/24.04 LTS	Windows 10/11, Linux Kernel
Power	ATX 24-Pin	ATX 24-Pin + 12V-8Pin
Environment & Certification	0°C to 60°C, CE, FCC Class A, UKCA	0°C to 60°C, CE, FCC Class A
Form Factor	170 x 170 mm	

USA 918 Radecki Ct., City of Industry, CA 91748
TW 176 Jianyi Rd., Zhonghe Dist., New Taipei City
800.977.3646
886-2-7731-7888
sales@premioinc.com
premioinc.com

We Design, Manufacture, and Service Customers Around the World

CHICAGO
CALIFORNIA (HQ)
TAIWAN (HQ)
MALAYSIA

BOARD 3.5” SBC SERIES

Model	CT-DAS01	CT-DAS02
Processor	**Standard** • Intel® Atom® x7433RE Processor 6M Cache, up to 3.40 GHz 4 core **Project Based** • Intel® Atom® x7835RE Processor 6M Cache, up to 3.60 GHz 8 core	**Standard** • Intel® Processor N97, 6MB Cache, up to 3.60 GHz, 4-Core Processor **Project Based** • Intel® Processor N150, 6MB Cache, up to 3.60 GHz, 4-Core Processor • Intel® Atom® x7433RE, 6MB Cache, up to 3.40 GHz, 4-Core Processor
Memory	1x 262-Pin DDR5 4800 MT/s SO-DIMM. Max. up to 16GB (Non-ECC)	
LAN	2x Intel® I226IT 2.5GbE LAN	2x Intel® I226V 2.5GbE LAN
USB & Serial	2x USB 3.2 Gen 2 Type A, 1x USB 3.2 Gen 1 Type A 1x USB 3.2 Gen 1 Type C, 2x USB 2.0 Pin header 3port 1x DP, 1x HDMI, 1x eDP / 1x LVDS	
Internal I/O	2x CAN FD	-
	• 2x RS-232/422/485 Internal	• 1x RS-232/422/485 Internal • 1x RS-232 Internal
	1x 8-bit GPIO non-isolation OOB Internal header, 1x Front Panel con, 1x Audio con	
Storage	1x M.2 M-Key NVMe + 1x SATA (share with M.2 B-Key)	
Power	DC in 9~36V	
TPM	TPM 2.0	
Operating Temperature	-40°C to 85°C, 10% to 95% (non-condensing)	-10°C to 60°C, 10% to 90% (non-condensing)
Dimensions (W x H x D)	146mm x 102mm	

Model	CT-DML01
Processor	• Intel® Core™ Ultra 5 Processor 125U 12M Cache, up to 4.30 GHz (2+8+2 core) • Intel® Core™ Ultra 7 Processor 155U 12M Cache, up to 4.80 GHz (2+8+2 core)
Memory	1x 262-Pin DDR5 5600 MT/s SO-DIMM. Max. up to 48GB (Non-ECC)
LAN	• GbE1: Intel i226-LM 2.5GbE LAN PXE Support • GbE2: Intel i226-V 2.5GbE LAN PXE Support • GbE3: Intel i226-V 2.5GbE LAN PXE Support
USB & Serial	1x USB 3.2 Type-C (5 Gbps) 2x USB 3.2 Gen 2 (5 Gbps) 1x USB 2.0
Expansion	• 1x M.2 M-Key (2280, PCIe x4 Gen 4/SATA) • 1 x M.2 B-Key (3042/3052, PCIe x2+USB 3.0+USB 2.0), • 1 x M.2 E-Key (2230, PCIe+USB 2.0)
Power	DC IN 12~24V with OVP & OCP
TPM	dTPM 2.0
Operating Temperature	0°C to 60°C , 10% to 95% (non-condensing)
Dimensions (W x H x D)	146mm x 102mm

USA 918 Radecki Ct., City of Industry, CA 91748
TW 176 Jianyi Rd., Zhonghe Dist., New Taipei City
800.977.3646
886-2-7731-7888
sales@premioinc.com
premioinc.com

We Design, Manufacture, and Service Customers Around the World

CALIFORNIA (HQ)
CHICAGO
TAIWAN (HQ)
MALAYSIA

BOARD 3.5” SBC SERIES

Model	CT-DAL11	CT-DAL01	CT-DR101
Processor	• 12th Gen Intel® Alder Lake-N Processor N97, 6M Cache, up to 3.60 GHz, 4 core 12W • Intel® Atom® x7835RE Processor 6M Cache, up to 3.60 GHz, 8 core 12W	• 12th Gen Intel® IoTG Alder Lake-N Processor N97, QC, 12W • 12th Gen Intel® IoTG Alder Lake-N Processor Core i3-N305, OC, 9W up to 15W	• AMD Ryzen™ Embedded V1605B with Radeon™ Vega 8 Graphics, 4M Cache, 4 Cores, 8 Threads, Up to 3.6 GHz • AMD Ryzen™ Embedded R1606G with Radeon™ Vega 3 Graphics, 4M Cache, 2 Cores, 4 Threads, Up to 3.5 GHz
Memory	1x 262-Pin DDR5 4800 MT/s SO-DIMM. Max. 16GB (Non-ECC)	1x 262-Pin DDR5 4800 MT/s SO-DIMM slot, Max 16GB	2x 260-Pin DDR4 2400 MHz SO-DIMM. Max. up to 32GB (ECC and Non-ECC)
LAN	• GbE1: Intel i226V 2.5GbE LAN PXE Support • GbE2: Intel i226V 2.5GbE LAN PXE Support • GbE3: Intel i226V 2.5GbE LAN PXE Support	2x Intel® I225-V 2.5GbE LAN	• GbE1: Intel i210 (Support Wake-on-LAN and PXE) • GbE2: Intel i210 (Support Wake-on-LAN and PXE)
USB & Serial	2x USB 3.2 Gen 2 (10Gbps) 2x USB 2.0 Internal Headers	2x USB 3.2 Gen 2 (10Gbps) 2x USB 3.2 Gen 1 (5Gbps)	2x USB 3.2 Gen2 (10Gbps) 2x USB 2.0
Expansion	• 1 x M.2 B-Key (SATA/PCIe x1/USB3.0), 2242/3042 for SATA/4G/5G support • 1 x M.2 E-Key (PCIe x1, USB 2.0), 2230 for Wifi/Bluetooth • 1x SATA 3.0 6Gb/s port (Support AHCI)	• 1 x M.2 B-key (SATA/PCIe x1), 2242/3042/2280 • 1 x M.2 E-key (PCIe x1, USB 2.0), 2230 • 1x SATA 3.0 6Gb/s port (Support AHCI)	• 1x M.2 B-Key, 3042, Support SATA • 1x SATA 7-Pin Connector • 1x Full-size Mini PCIe (PCIe x1, USB 2.0)
Power	DC in 12~36V	DC in 9~36V	AT/ ATX 12V
TPM	TPM 2.0	dTPM 2.0	TPM 2.0
Operating Temperature	-10°C to 60°C, 10-90% (non-condensing)	-10°C t 60°C, 10-90% (non-condensing)	-40°C to 75°C, 95% (non-condensing), operating
Dimensions (W x H x D)	146mm x 102mm		

USA 918 Radecki Ct., City of Industry, CA 91748
TW 176 Jianyi Rd., Zhonghe Dist., New Taipei City
800.977.3646
886-2-7731-7888
sales@premioinc.com
premioinc.com

We Design, Manufacture, and Service Customers Around the World

CHICAGO
CALIFORNIA (HQ)
TAIWAN (HQ)
MALAYSIA

BOARD SERIES

2.5 PICO ITX

1.8" FEMTO ITX

Model	CT-PBT01	CT-NR101
Processor	Intel® Celeron Processor J1900 (2.0GHz/4 Core/10W)	Support AMD Ryzen™ Embedded R1000 Series AMD Ryzen™ Embedded R1606G with Radeon™ Vega 3 Graphics, 4M Cache, 2 Cores, 4 Threads, Up to 3.5 GHz
Memory	1x 204-Pin DDR3L 1066/1333MHz SO-DIMM. Max. up to 8GB	1x DDR4-2400 Single-Channel Memory 4GB (Up to 8GB, Optional)
Storage	1x SATA 3.0Gb/s 1x mSATA (shared by 1x Mini PCIe)	eMMC up to 64GB
Display	1x HDMI (2048x1080 @60Hz) 1x LVDS	2x Micro HDMI 1.4 (4K DCI)
Rear I/O	1x USB 3.0, 1x USB 2.0 1x RJ45	1x RJ45 (GbE) 1x Type C USB 3.1 Gen1 (5V/3A) 2x 5-pin header DIO (4-in/4-out)
Internal I/O	1x RS-232/422/485, 1x RS-232 2x USB 2.0 1x 8-bit GPIO (4-in/4-out)	1x USB 2.0 (4-pin header, internal)
Expansion	1x Half-size Mini PCIe 1x Half-size Mini PCIe (Full-size optional)	1x Full-size Mini PCIe (PCIe x1, USB 2.0) 1x SMBus
Operating Systems	Windows 10, Windows 7, WES7 Linux kernel 3.X	Windos 10, Linux Kernel 5.x
Power	ACPI, DC in 12V	ACPI, DC in 12V
Operating Temperature	-10°C to 70°C	0°C to 60°C
Dimensions	100 mm x 72 mm	84mm x 55mm

USA 918 Radecki Ct., City of Industry, CA 91748
TW 176 Jianyi Rd., Zhonghe Dist., New Taipei City
800.977.3646
886-2-7731-7888
sales@premioinc.com
premioinc.com