BOARD SERIES

INDUSTRIAL MOTHERBOARDS & SINGLE BOARD COMPUTERS

INDUSTRIAL BUILDING BLOCKS
FOR THE RUGGED EDGE

INDUSTRIAL MOTHERBOARDS & SINGLE BOARD COMPUTERS

Premio's industrial boards and single board computers provide a long-lasting standard off-the-shelf solution to meet the most challenging embedded applications.

- Industrial Grade Durability
- Standardized Form Factors
- Intel & AMD 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 represent the standard of embedded computing, the future of data processing and I/O connectivity. From OEM /ODM enterprise computing designs to embedded single board computer applications, Premio provides reliability and longevity with standard off-the-shelf industrial grade motherboards for the most challenging embedded deployments.

We also provide end-to-end engineering services to ensure your configuration requirements and solve your mechanical design challenges. From a full custom solution to a small change in the I/O, we can adapt each motherboard to comply with your specifications without compromising performance.

Key Markets Applications

Designed to meet the demanding needs of various industrial applications with durability and reliability, these robust solutions provide the performance and versatility necessary for complex operational systems. Key market verticals that benefit from these powerful boards include industrial automation, smart retail and kiosks, digital signage, medical imaging, and more.

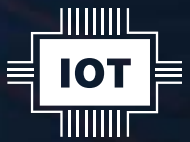
Industrial Automation

Embedded Computing

Smart Retail & Kiosks

Digital Signage

Medical Imaging

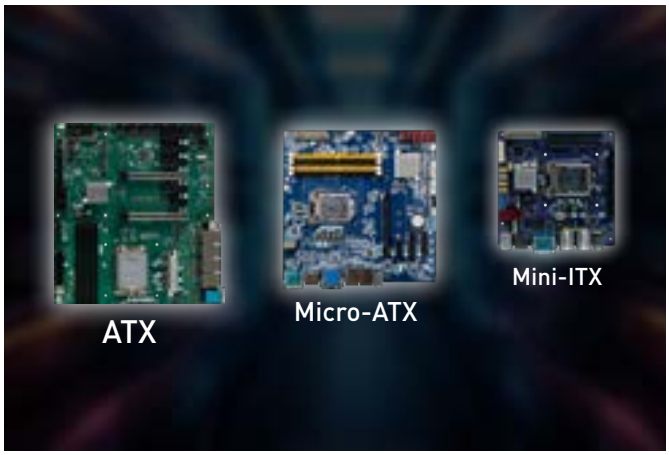


Industrial IoT

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 and most common form factor motherboard. ATX motherboards offers room for many I/O ports, PCIe lanes, and SATA connections that users can find useful for many industrial workloads.

- Supports socket type design for x86 processors
- Multiple PCIe Expansion slots
- Dual Channel DIMM Memory
- Flexible PCB space for Industrial digital and analog I/O

Micro ATX

Micro ATX, or mATX, motherboards are a common choice used in small form factor computers. 25% in size to its standard ATX variant, micro ATX supports up to four expansion slots and memory DIMM slots.

- Supports socket type design for x86 processors
- Multiple PCIe Expansion slots
- Dual Channel DIMM slots for memory
- Flexible PCB space for Industrial digital and analog I/O

Mini ITX

Mini ITX is a popular motherboard size for its flexibility in various embedded and industrial deployments due to its robust performance and compact size.

- Supports socket type design for x86 processors
- Single PCIe Expansion slot
- SO-DIMM slots for memory
- Flexible PCB space for Industrial digital and analog I/O

Single Board Computers

3.5” Single Board Computer

3.5” SBC motherboards are popular building blocks for OEM embedded designs and IoT devices. 3.5” SBCs provide mission-critical balance in power consumption, flexible I/O, and performance.

- Support x86 system-on-chip (SoC) processors
- Balanced for Low-Power Consumption & Performance
- OEM building block for embedded computing design

2.5” PICO-ITX

PICO-ITX boards are known to fit in small, embedded designs that are limited in mechanical space. This small standard size supports x86 SoC processors and is an OEM building block for embedded computing designs.

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

1.8” FEMTO-ITX

FEMTO-ITX form factor is an industrial-grade alternative to the “Raspberry Pi” that can deliver performance in the smallest embedded or IoT devices. 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

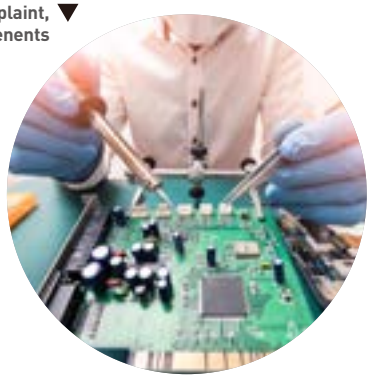
Form Factor	ATX	Micro-ATX	Mini-ITX	3.5" Single Board Computer	2.5" Single Board Computer	1.8" Single Board Computer
Socket Design	Socket CPU	Socket CPU	Socket CPU	System-On-Chip (Soc)	System-On-Chip (Soc)	System-On-Chip (Soc)
Architecture	x86	x86	x86	x86	x86	x86
Processor	Intel	Intel	Intel	Intel or AMD	Intel	AMD
PCIe Slots	2-3x PCIe x 16 2-3x PCIe x1	1-2x PCIe x 16 1x PCIe x4 1-2x PCIe x1	1x PCIe x 16 1x MiniPCIe	2x Half-sized mini PCIe	2x Half-sized mini PCIe	1x mini PCIe
TPM	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0

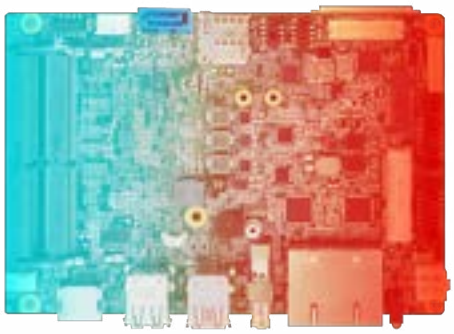
Industrial Grade Design

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

Built with safety-complaint, industrial-grade compenents ▼





Cold — Hot

▲ Suitable for operation at high and low temperatures

CE FC

EXTENDED

▲ Stable and long-lasting operation

We Design, Manufacture, and Service customers around the world

BOARD SERIES

intel

Model	CT-ARL01	CT-MRL01	CT-XSL01
Processor	14th Gen Intel® Raptor Lake-S i9/i7/ i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W 13th Gen Intel® Raptor Lake-S i9/i7/ i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W 12th Gen Intel® Alder Lake-S i9/ i7/i5/i3/Pentium®/Celeron® IOTG Series Processor, Max 125W	Support 12/13/14th Gen Intel® Core™ i9/i7/i5/i3 Alder lake-S, Raptor Lake-S Processor (LGA 1700, 65W Max TDP)	LGA 1151 socket supporting 6th Gen Intel® Core™ i3/i5/i7 Desktop Processor - Intel® Core™ i7-6700TE, Quad Core, up to 3.4 GHz - Intel® Core™ i5-6500TE, Quad Core, up to 3.3 GHz - Intel® Core™ i3-6100TE, Dual Core, 2.7 GHz
Memory	4x DDR5 4400 MHz ECC/non-ECC UDIMM slots up to 128GB	4x DDR4 2133/2400/2666MHz DIMM. 128 GB Max	2x 260-Pin DDR4 1866/2133MHz SODIMM
LAN	4x 2.5GbE LAN	GbE1: Intel® I219LM, 1GbE (Support Wake-on-LAN and PXE) GbE2: Intel® I225-V, 2.5GbE (Support Wake-on-LAN and PXE)	1x Intel® I219LM GbE PHY 1x Intel® I211AT GbE controller
USB & Serial	8 x USB 3.2 Gen 2 x1 Ports (8 x Rear) 2 x USB 3.2 Gen 1 Ports (2 x Internal) 3 x USB 2.0 Ports (3 x Internal with one Vertical Type-A Connector)	6x USB 3.1 Gen 2 (10 Gbps) 1x USB 3.2 Gen 2x2 (20 Gbps) Type C	4x USB 3.0, 2x USB 2.0
Storage	1x M key (Signal from CPU) 2280/22110 1x M key (Signal Shared by PCIe Slot5) 2242/2280 1x E key (PCIe x1), 2230 1x B key (PCIe x2), 2242/2280 4x SATA 3.0 (RAID 0/1/5/10)	1x M.2 M / NVMe PCIe x4 Gen 4/ 2242, 2260, 2280 1x M.2 M / NVMe PCIe x4 Gen 4/ SATA / 2242, 2260, 2280 1x M.2 E / PCIe x2 Gen 3/ USB 2.0 / 2230 4x SATA	1x M.2 (M-Key, Type: 2280) 4 x SATA 6.0Gb/s
Expansion	2x PCIe x16 (Signal configured as 1x PCIe x16 or 2x PCIe x8) 4x PCIe x4 1x PCIe x1	1x PCIe x16 Slot (Gen 5) 1x PCIe x16 Slot (Gen 4, 4-Lane) 1x PCIe x4 Slot (Gen 4, Open End) 1x PCIe x4 Slot (Gen 3, Open End)	1x PCIe x16
Power	ATX-Power 24P, 12V-8P	ACPI 5.0 compliant ATX Power 2x12-pin and 2x2-pin power connector	ACPI 5.0 compliant ATX Power 2x12-pin and 2x2-pin power connector
TPM	Infineon® SLB9672VU2.0	TPM 2.0	TPM2.0 supported (optional)
Operating Temperature	0 °C to 60 °C	0 °C to 60 °C	0°C to 60°C
Dimensions (W x H x D)	305mm x 244 mm	244mm x 244mm	170mm x 170mm

We Design, Manufacture, and Service customers around the world

BOARD SERIES

intel AMD RYZEN EMBEDDED

Model	CT-DAL01	CT-DAL11	CT-DR101
Processor	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	Intel® Amston Lake x7433RE Processor, 4-Core, 9W, UHD 32EUs Intel® Amston Lake x7835RE Processor, 8-Core, 12W, UHD 32EUs 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	Support AMD Ryzen™ Embedded R1000/V1000 Series 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 4800MHz SO-DIMM slot (262-pin), Max 16GB	1x 262-Pin DDR5 4800MHz SO-DIMM slot (262-pin), Max 16GB	2x 260-Pin DDR4 2400 MHz SO-DIMM. Max. up to 32GB (ECC and Non-ECC)
LAN	2x Intel® I225-V 2.5GbE LAN	3x 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 3.2 Gen 1 (5Gbps)	2x USB 3.2 Gen 2 (10Gbps) 2x USB 3.2 Gen 1 (5Gbps)	2x USB 3.2 Gen2 (10Gbps) 2x USB 2.0
Storage	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)	1 x M.2 B key (SATA/PCIe x1), 2242/3042/2280 with Nano SIM Socket for 4G/5G support 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
Expansion			1x Full-size Mini PCIe (PCIe x1, USB 2.0)
Power	DC in 9~36V	DC in 9~36V	AT/ ATX 12V
TPM	dTPM 2.0	dTPM 2.0	TPM 2.0
Operating Temperature	-10°C ~ 60°C, 10-90% (non-condensing)	-10°C ~ 60°C, 10-90% (non-condensing)	0°C to 60°C
Dimensions (W x H x D)	146mm x 102mm	146mm x 102mm	170mm x 170mm

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BOARD SERIES

intel AMD RYZEN EMBEDDED

Model	CT-PBT01	CT-NR101
Processor	Intel Celeron Processor J1900 (2.0GHz/4C/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 SODIMM	DDR4-2400 Single-Channel Memory 4GB (Up to 8GB, Optional)
LAN	1x Intel® I210AT GbE controller	GbE1: Intel i210 (Support Wake-on-LAN and PXE)
USB & Serial	1x USB 3.0, 1x USB 2.0	1x USB 3.2 Gen 1 Type C (5V/3A) 1x USB 2.0 (4-pin header, internal)
Storage	1 x SATA 3.0Gb/s	
Expansion		
Power	ACPI 12V DC Input 2-pin power connector	ACPI DC 12V 2-pin Terminal Block Pitch=5.0mm
TPM		TPM 2.0
Operating Temperature	-10°C to 70°C	0°C ~ 60°C, 90% (non-condensing), operating
Dimensions (W x H x D)	100mm x 72mm	84mm x 55mm