

The4thware Industrial Board (MATX)

12th/13th/4th Generation Intel Core, Pentium, Celeron Series Platform

T4WARR-Z690-MATX1



PRODUCT SPECIFICATION

Physical Status	
Form Factor	Micro-ATX
Dimensions	9.6" x 9.6" (244 mm x 244 mm)
Processor System	
CPU	Supports Intel® Core™ 14th Gen, 13th & 12th Gen Intel® Core™, Pentium® and Celeron® series processors
Socket	Single Socket LGA 1700
Thermal Design Power	125W
Chipset	Intel® Z690
System Memory	
Supported DIMM Quantity	4 DIMM slots (2DPC)
Supported Type	DDR5 288-pin non-ECC UDIMM
Max. Capacity per DIMM	32GB
Max. DIMM Frequency	4400MT/s (2DPC-1DIMM) / 4000MT/s (2DPC-2DIMM 1R) / 3600MT/s (2DPC-2DIMM 2R)
Voltage	1.1V
PCIe Expansion Slots (SLOT7 close to CPU)	
PCIe x 16	SLOT6: PCIe5.0 x16 [CPU]
PCIe x 4	SLOT7: PCIe4.0 x4 [CPU]
PCIe x 1	SLOT4: PCIe3.0 x1 [PCH]
Other PCIe Expansion Connectors	
M.2 slot	1 M-key (PCIe3.0 x4) [PCH]; support 2280/2260/2242/2230 form factor
OCuLink	1 OCuLink (PCIe4.0 x4)* [CPU] 1 OCuLink (PCIe4.0 x4 or 4 SATA 6Gb/s) [PCH] 2 OCuLink (PCIe4.0 x4) [PCH] *OCuLink4 shares lanes with SLOT7 and will be disabled when SLOT7 is populated.
SATA/SAS Storage	
PCH Built-in Storage	Intel Z690 (up to 8 SATA 6Gb/s; RAID 0/1/5/10): 4 SATA 7-pin, 1 OCuLink for 4 SATA
Ethernet	
Additional GbE Controller	2 RJ45 (10GbE) by Intel® X710 2 RJ45 (1GbE) by Intel® i210
Server Management	
BMC Controller	ASPEED AST2600: iKVM, vMedia support
IPMI Dedicated GLAN	1 RJ45 Dedicated IPMI LAN port by Realtek RTL8211F

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Graphics	
Controller	ASPEED AST2600: 1 DB15 (VGA) Intel® Integrated Processor Graphics: 1 HDMI, 1 DisplayPort
Rear I/O	
UID Button/LED	1 button w/ LED
VGA Port	1 DB15 (VGA), 1 HDMI, 1 DisplayPort
Serial Port	1 DB9 (COM)
USB 3.2 Gen1 Port	2 Type A (USB3.2 Gen1)
RJ45	2 RJ45(10GbE), 2 RJ45(1GbE), 1 dedicated IPMI
Internal Connector/Headers	
Power Connector	1 (24-pin, ATX main power), 2 (8-pin, ATX 12V)
Auxiliary Panel Header	1 (18-pin): chassis intrusion, system fault LED, LAN1/LAN2 activity LED, locate, SMBus
System Panel	1 (9-pin): power switch, reset switch, system power LED, HDD activity LED
VGA header	1
Speaker Header	1 (4-pin)
Buzzer	1
Fan Header	7 (4-pin)
Thermal Sensor Header	1
TPM Header	1 (13-pin, SPI)
SGPIO Header	1
SMBus header	1
PMBus header	1
IPMB Header	1
Clear CMOS	1 (contact pads)
Others	1 (4-pin, LAN3/LAN4 LED)
ME/SPS Recovery	1
USB 3.2 (Gen1) Header	1 (19-pin, 2 USB3.2 Gen1)
USB 2.0 Header	1 (9-pin, 2 USB2.0)
NMI Header	1

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LED Indicators	
Standby PWR LED 5vsb	1
80 Debug Port LED	1
Fan Fail LED	7
BMC heartbeat LED	1
System BIOS	
BIOS Type	AMI 256 Mb SPI Flash ROM
BIOS Features	Plug and Play(PnP), ACPI 6.4 and above compliance wake up events, SMBIOS 3.6.0 and above, ASRock Rack instant flash
Hardware Monitor	
Temperature	CPU, MB, Card side, VR, M.2, X710, TR Temperature sensing
Fan	Fan Tachometer CPU Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU Temperature) Fan Multi-Speed Control
Voltage	3VSB, 5VSB, CPU_VCORE, VCCIN_AUX, VDD2, 1.05V_PCH, 0V82SB_PCH, VCCGT, 1V8SB, VCCSA, BAT, 3V, 5V, 12V
Supported OS	
OS	Windows® 10 (64 bit) Windows® 11 (64 bit)
Environment	
Temperature	Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C
Humidity	Non operation humidity: 20% ~ 90% (Non condensing)