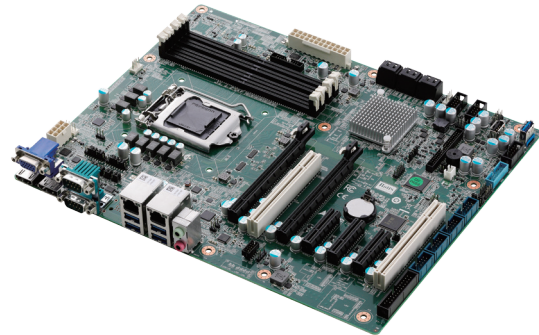


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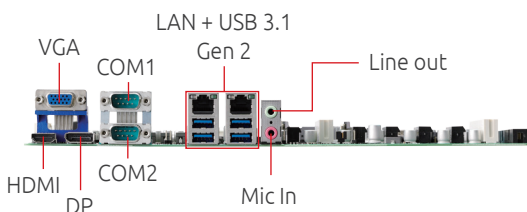
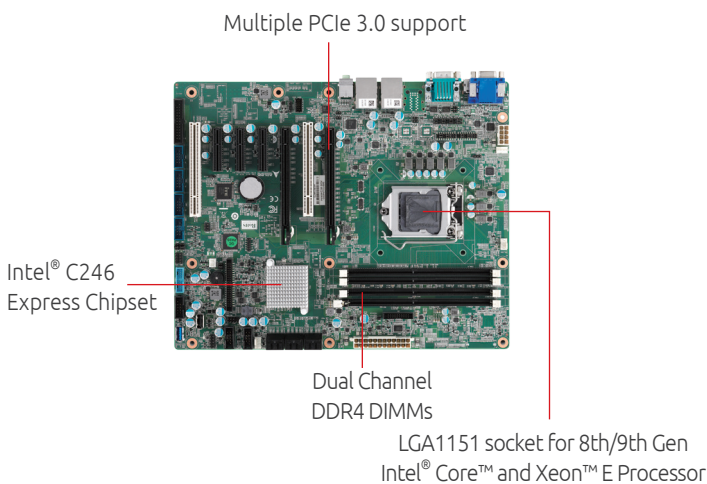
## Industrial ATX Motherboard with 8th/9th Gen Intel® Core™ i7/i5/i3 or Xeon™ E Processors

### Features

- 8th/9th Gen Intel® Core™ i7/i5/i3 or Xeon™ E processors and C246 chipset
- ECC or NON ECC UDIMM support (based on CPU)
- Dual-channel DDR4 2400/2666 MHz memory up to 128 GB (based on CPU)
- Intel® PCIe 3.0 slot bifurcation supports up to 5x PCIe 3.0 expansion slots
- Rugged I/O design to enhance I/O port compatibility and reliability
- Unique power design to ensure stable USB power of 5V ±5%
- IEC 61000-4-2~6 (Performance Criterion A), CE/FCC class B certified



### Product Illustration



### Ordering Information

- **IMB-M45**  
ATX 8th/9th Intel® Core™ i7/i5/i3 or Xeon™E industrial motherboard  
Note: CPU, Memory module and Cooler kit are not included

### Packing Lists

- IMB-M45
- IMB-M45 I/O shield

### Optional Accessories

- 2-port USB 2.0 port cable with bracket (Part Number: 30-25010-3010)
- 4-port USB 2.0 port cable with bracket (Part Number: 30-25009-3000)
- 2-port USB 3.0 port cable with bracket (Part Number: 30-25046-0100)
- 1-port LPT port cable with bracket (Part Number: 30-25019-2000)
- 2-port COM port cable with bracket (Part Number: 30-25003-3000)
- PS/2 KB/MS Cable with Bracket from 6P pin-header (Part Number: 30-01019-2010)
- 1-port SATA cable (Part Number: 30-10057-7000)
- CPU cooler for ≤65W and 35W CPU (CPU cooler Part Number: 32-20113-2000, including CPU cooler backplane)
- CPU cooler for >65W CPU (CPU cooler Part Number: 32-20831-0000-A0, CPU cooler backplane Part Number: 32-50031-0000-A0)

## Specifications

Processor System	
CPU	Intel® Xeon™ E-2278GE, 3.3GHz, 16M Cache, 80W TDP, LGA1151, DDR4 2666MHz support, (8C/16T)
	Intel® Xeon™ E-2226GE, 3.4GHz, 12M Cache, 80W TDP, LGA1151, DDR4 2666MHz support, (6C/6T)
	Intel® Xeon™ E-2176G, 3.7GHz, 12M Cache, 80W TDP, LGA1151, DDR4 2666MHz support, (6C/12T)
	Intel® Xeon™ E-2124G, 3.4GHz, 8M Cache, 71W TDP, LGA1151, DDR4 2666MHz support, (4C/4T)
	Intel® Core™ i7-9700E, 2.6GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (8C/8T)
	Intel® Core™ i7-9700TE, 1.8GHz, 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (8C/8T)
	Intel® Core™ i5-9500E, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T)
	Intel® Core™ i5-9500TE, 2.2GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T)
	Intel® Core™ i3-9100E, 3.1GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T)
	Intel® Core™ i3-9100TE, 2.2GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (4C/4T)
	Intel® Core™ i7-8700, 3.2GHz, 12M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/12T)
	Intel® Core™ i7-8700T, 2.4GHz 12M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/12T)
	Intel® Core™ i5-8500, 3.0GHz, 9M Cache, 65W TDP, LGA1151, DDR4 2666MHz support (6C/6T)
	Intel® Core™ i5-8500T, 2.1GHz, 9M Cache, 35W TDP, LGA1151, DDR4 2666MHz support (6C/6T)
	Intel® Core™ i3-8100, 3.6GHz, 6M Cache, 65W TDP, LGA1151, DDR4 2400MHz support (4C/4T)
	Intel® Core™ i3-8100T, 3.1GHz, 6M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (4C/4T)
	Intel® Pentium® G5400, 3.7GHz, 4M Cache, 58W TDP, LGA1151, DDR4 2400MHz support (2C/4T)
	Intel® Pentium® G5400T, 3.1GHz, 4M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (2C/4T)
	Intel® Celeron® G4900, 3.1GHz, 2M Cache, 54W TDP, LGA1151, DDR4 2400MHz support (2C/2T)
	Intel® Celeron® G4900T, 2.9GHz, 2M Cache, 35W TDP, LGA1151, DDR4 2400MHz support (2C/2T)
Chipset	Intel® C246 Express Chipset
Memory	Four 288 PIN DDR4 ECC or NON ECC Sockets Dual channel DDR4 2400/2666 MHz, up to 128 GB (based on CPU)
BIOS	AMI® UEFI BIOS, 256 Mb SPI Flash Memory
Watchdog Timer	software programmable and can be generate system reset
Hardware Monitor	CPU voltage
	+3.3 V voltage
	+5 V voltage
	+12 V voltage
	CPU temperature
Operating Systems	System temperature
	CPU fan speed
	System fan speed
I/O Interfaces	Microsoft® Windows® 10 64-bit
	Microsoft® Windows® 2016 64-bit
	OpenSUSE Leap 15.1 64-bit
	Fedora 30 64-bit
Serial ATA	Ubuntu 18.10 64 bit
	6x SATA 6.0 Gb/s connectors
USB	Intel® Software RAID support 0/1/5/10
	4x USB 3.1 Gen2 connectors (rear)
	2x USB 3.1 Gen1 pin headers
Serial Ports	6x USB 2.0 pin headers
	1x USB 3.1 Gen1 (vertical type A connector)
Expansion slots	1x USB 2.0 (vertical type A connector)
	2x RS-232/422/485 with auto flow control connector (rear)
	4x RS-232 pin headers
Parallel Port	<Signal>
	If PEG2 is occupied, PEG1 is PCIe x8 Gen3, PEG2 is PCIe x8 Gen3
	If PEG2 is not occupied, PEG1 is PCIe x16 Gen3, PEG2 is no signal
PS2 Combo Port	PCIe1: PCIe x4 Gen3, PCIe2: PCIe x4 Gen3, PCIe3: PCIe x4 Gen3,
	PCI1: PCI 2.2, PCI2: PCI 2.2
DIO	<Physical Slot>
	PEG1: PCIe x16 slot, PCI1: PCI slot, PEG2: PCIe x16 slot, PCIe1: PCIe x4 slot, PCIe2: PCIe x4 slot, PCIe3: PCIe x4 slot, PCI2: PCI slot
DIO	1x LPT pin header
	1x PS/2 keyboard & Mouse pin header
DIO	2x 20-pin/2.0mm GPIO pin header: 16 in and 16 out, one ground pin and one power pin (5V/12V/no power, jumper selected)

\*Other Linux Distribution support by request

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## Specifications

Audio	
Audio Codec	Realtek® ALC892
Interface	1x Line-out and 1x Mic-in connector (rear)
Graphics	
Graphics Engine	Integrated Intel® HD Graphics series (based on CPU)
VGA	1x VGA connector (rear), resolution up to 1920 x 1200 @ 60 Hz
DisplayPort 1.2	1x DP connector (rear), resolution up to 3840 x 2160 @ 60 Hz
HDMI 1.4	1x HDMI connector (rear) resolution up to 3840 x 2160 @ 30 Hz
Ethernet	
Controller	LAN1: Intel® I219-LM via RJ45 connector (rear) LAN2: Intel® I210-AT via RJ45 connector (rear)
Intel® AMT	LAN1 Support
Wake On LAN	LAN1 and LAN2 support
Mechanical and Environmental	
Form Factor	ATX
Dimension	305 mm x 244 mm (W x L)
Operating Temperature	0 °C to 60 °C
Storage Temperature	-40 °C to 85 °C
Relative Humidity	60° C @ 95% RH Non-condensing
Certification	CE & FCC Class B

\*Other Linux Distribution support by request