

H610I-EM-A

Mini-ITX, LGA1700 socket for the 14th/ 13th/12th Gen CPU, H610 chipset, 2*SO-DIMM.
1*PCIe x16, 1*DP, 2*HDMI, 1*LVDS, 2*M.2 slot, 2*SATA connectors

Back I/O



Features

- Two SO-DIMM up to 32GB DDR4 2666/2400/2133 MHz.
- Supports 3 displays (2 displays simultaneous): 1 x DP, 2 x HDMI, 1 x LVDS
- 7-year longevity supply
- Wide temperature Range: 0~60°C

Specifications

Processor System	CPU	LGA1700 Socket for Intel® Core™9/ i7/ i5/ i3/ Pentium® /Celeron® Processors support 14th/13th/12th Gen CPU Max. 65W TDP
	Chipset	Intel® H610 Chipset
Memory	Technology	DDR4
	Max.	2 x 32GB (Total 64GB)
	Socket	2 x SO-DIMM
Display	DP	1
	HDMI	2
	LVDS	1
	eDP	1 (BOM option)
	Multiple displays	Max. 3 displays
Expansion Slot	PCIe	1 x PCIe 4.0 x16 Slot
	M.2	1 x M.2 E key, Type 2230 for WIFI/BT device (PCIe & CNVi) 1 x M.2 M key, Type 2242/2260/2280 (PCIe x4/SATA mode , support NVME)
Ethernet	Speed	10/100/1000 Mbps
	Controller	2 x RTL8111H
	Connector	2 x RJ-45
Audio	Codec	Realtek ALC897
Storage	SATA port	2 port x SATA Gen 3.0, Up to 6Gb/s
Rear I/O	Display Port	1
	HDMI	2
	USB 3.2 Gen1	4
	Ethernet	2 x RJ45
	Serial Port	2 (RS232/422/485)
	Audio jack	2 (Line-Out, mic-in)
Internal Connector	COM Header	4 x COM Header (RS232)
	USB2.0	2 x Header Support Additional 4 x USB 2.0 Ports 1 x Vertical Connector
	CPU Fan/ Chassis Fan	1 x Header (PWM Mode) / 1 x Header (PWM Mode)
	LVDS/ eDP selection	1 x Header
	Panel SW	1 x Header
	Front Panel Audio (AAFP)	1 x Header
	System Panel	1 x Header
	Chassis Intrusion	1 x Header
	Speaker connector	1 x Header
	Clear CMOS	1 x Header
	COM Debug	1 x Header
	GPIO	1 x Header (8 Bit)

Watchdog Timer	H/W	YES
Security	TPM	1 x SPI TPM header
Power Type	Power Type	ATX
OS & Software Support	Microsoft Windows	Windows® 10 (64bit)/Windows® 10 IOT Enterprise
	Linux	Ubuntu, RedHat Enterprise, Fedora Workstation, OpenSUSE
	ASUS IoT Suite	☒ HW Monitor ☒ Power Scheduling ☒ Fan Control ☒ Watch Dog Timer ☒ GPIO
	User Interfaces	☒ API ☒ GUI
Environment	Operating Temperature	0~60 °C
	Non-Operating Temperature	-40~85 °C
	Relative Humidity	Operational humidity: 40 °C@10%~95%
Mechanical	Dimensions	Mini-ITX, 170 x 170 mm
Certification	EMC (CLASS B)	CE, FCC, BSMI, VCCI, RCM
	Safety	CE-LVD

The diagram illustrates the system architecture for the Intel Alder Lake LGA-1700 Pin Socket. It is divided into three main functional blocks: Processor, Platform Controller Hub (PCH), and I/O/Storage/Debug components.

Processor Block:

- Intel Processor ALDER LAKE (8+8 or 6+0):** LGA-1700 Pin Socket.
- Memory:** Channel A and Channel B, both supporting DDR4 2133/2400/2666/2933/3200 SO-DIMM.
- Display:** DDI B, C, and D support DP and HDMI; DDI A supports EDP/LVDS CONN (EDP MODE).
- Expansion:** Channel A and B support PCIe GEN4x16 (PCIEX16_1).

PCH Block:

- INTEL PCH:** Platform Controller Hub.
- Integrated Clock:** Connected to the processor.
- USB:** USB3.2 gen1 (LAN1_U32G1_12, LAN2_U32G1_34), USB2.0 (USB2_56, USB2_78, USB2_9).
- Storage:** SATA 6Gb/s (SATA6G port 1/2), SATA 6Gb/s (ASM1480 (Switch)), M.2 Slot (X4).
- Network:** AZALIA (Audio Codec Realtek ALC897), LAN1 RTL8111H, LAN2 RTL8111H.
- PCIe:** PCIe GEN3 (PCIEX16_1, PCIEX16_2, PCIEX16_3, PCIEX16_4).

I/O/Storage/Debug Components:

- Storage:** M.2_WIFI (CNVI & PCIe), M.2_WIFI (CNVI & PCIe), M.2_WIFI (CNVI & PCIe).
- Storage:** SPI FLASH, SPI TPM.
- Storage:** SIO NCT6126D, 8 DIO Header, COM DEBUG.
- Storage:** Transceiver F8143G, Transceiver UT213G.
- Storage:** COM1/2, COM3/4/5/6.

Order Information

Model name	Part number	Description
H610I-EM-A	90ME06X0*	LGA1700,H610,DP,HDMI,VGA,MB

* The part number might vary for different regulations and package. Please consult the TPM in your region for exact 90PN.

Packing List

Part number	Description	Quantity
13020*	IO shield	1
14013*	SATA 6G CABLE	1
13020*	M.2 screw pack	2

* The part number might vary due to part number revision.

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