



Embedded Motherboard



PN612S4

ALDER LAKE THIN MINI-ITX MOTHERBOARD



Intel® Alder Lake
12th Gen. Processors



1 x HDMI (4096 x 2160 @60 Hz)
1 x VGA (2048 x 1536 @60 Hz)
1 x LVDS (1920 x 1200 @60 Hz)



Support Wi-Fi/BT module



Thin Mini-ITX form-factor
170 mm x 170 mm (6.69" x 6.69")

CPU

CPU	Intel® LGA1700 Socket 12 th Gen. processors
Frequency	by CPU
Chipset	H610
Processing Units	by CPU
TDP	≤ 65 W

System

GPU	Intel® UHD Graphics (by CPU)
Graphic Engine	DirectX 12.1, OpenGL 4.5, OpenCL 3.0
System Memory	Up to 32 GB, 2 x SO-DIMM DDR4-3200 MHz
Storage	1 x M-Key M.2 (2242/2280) for SSD 2 x SATAIII
TPM	Optional: TPM2.0
Watchdog Timer	Yes
Auto Power On	Yes
RTC	Set up independently every day, a week as a cycle
Remo on	NA
Power Requirement	DC-IN, 19 V
Dimensions	Thin Mini-ITX, 170 mm x 170 mm (6.69" x 6.69")
Operating system	Windows 11 (64bit) /Linux Ubuntu (64bit)
Operating Temperature	0°C ~60°C (32°F~140°F) @0.7m/s Air Flow
Humidity	95% @ 45°C (non-condensing)

Network

Network Controller	1 x Realtek RTL 8111H Gigabit Ethernet
Wi-Fi/BT	1 x E-Key M.2 (2230) for Wi-Fi/BT Support Wi-Fi 5, Wi-Fi 6 (CNVI)
Mobile Network	NA

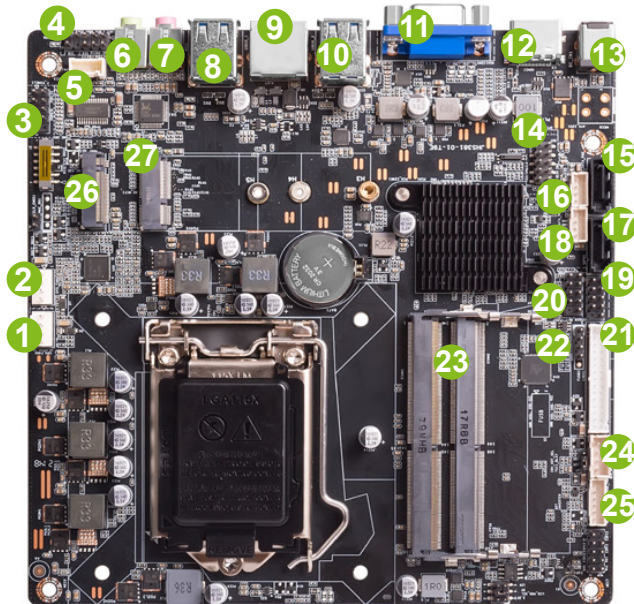
Rear I/O

USB	4 x USB3.2 Gen1
Display Interface	1 x HDMI (Max.4096 x 2160 @60 Hz) 1 x VGA (Max.2048 x 1536 @60 Hz)
Audio	1 x MIC-IN, 1 x AUDIO-OUT,
Ethernet Interface	1 x RJ45

Internal I/O

USB	4 x USB2.0, signal by 2 x 9pin USB header 1 x USB2.0, signal by 1 x 5pin USB header
Display	1 x 30pin dual channel 24bit LVDS (Max. 1920 x 1200 @60 Hz)
Serial port	1 x RS232 colay with VGA
Power	1 x 4pin ATX PWR_IN, 2 x 4pin HDD_PWR
Audio	1 x 10pin FP_AUDIO, 1 x 4pin SPEAKER
Others	1 x 10pin F_PANEL 1 x 3pin CLR_CMOS 1 x 8pin BKL_CON 1 x 6pin INVERTER 1 x 4pin SYS_FAN, 1 x 4pin CPU_FAN

Dimensions and Drawing



No.	Dimensions	No.	Dimensions
1	CPU_FAN	20	2*USB2.0
2	SYS_FAN	21	LVDS
3	F_PANEL	22	USB2.0
4	FP_AUDIO	23	2*SO-DIMM
5	SPEAKER	24	BKL_CON
6	AUDIO-OUT	25	INVERTER
7	MIC-IN	26	M-key M.2
8	2*USB3.2 Gen1	27	E-key M.2
9	RJ45		
10	2*USB3.2 Gen1		
11	VGA colay with RS232		
12	HDMI		
13	DC-IN		
14	TPM header		
15	SATAIII		
16	HDD_PWR		
17	SATAIII		
18	HDD_PWR		
19	2*USB2.0		

Order information

PN611S4	CPU: Intel® LGA1700 Socket 12th Gen. processors Chipset: H610
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Optional

Wi-Fi/BT module	Intel® Dual Band Wireless-AC 3165, Intel® Dual Band Wireless-AC 9260, Intel® Wi-Fi 6 AX200, Intel® Wi-Fi 6E AX210 (Gig+)
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