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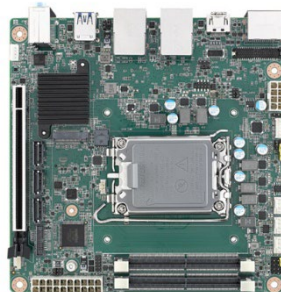


# Datasheet

## ADVANTECH

### AIMB-278

Mini-ITX Motherboard with 12th Gen. Intel® Core™ Processor Alder Lake



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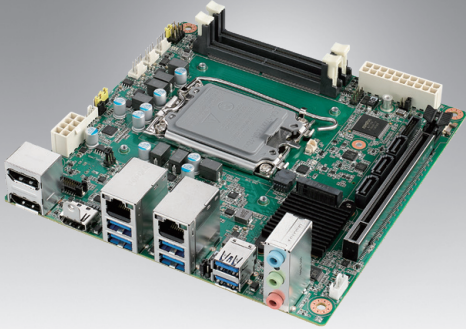
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# AIMB-278

## Mini-ITX Motherboard 12th Gen Intel® Core™ Processor LGA1700

Preliminary



### Features

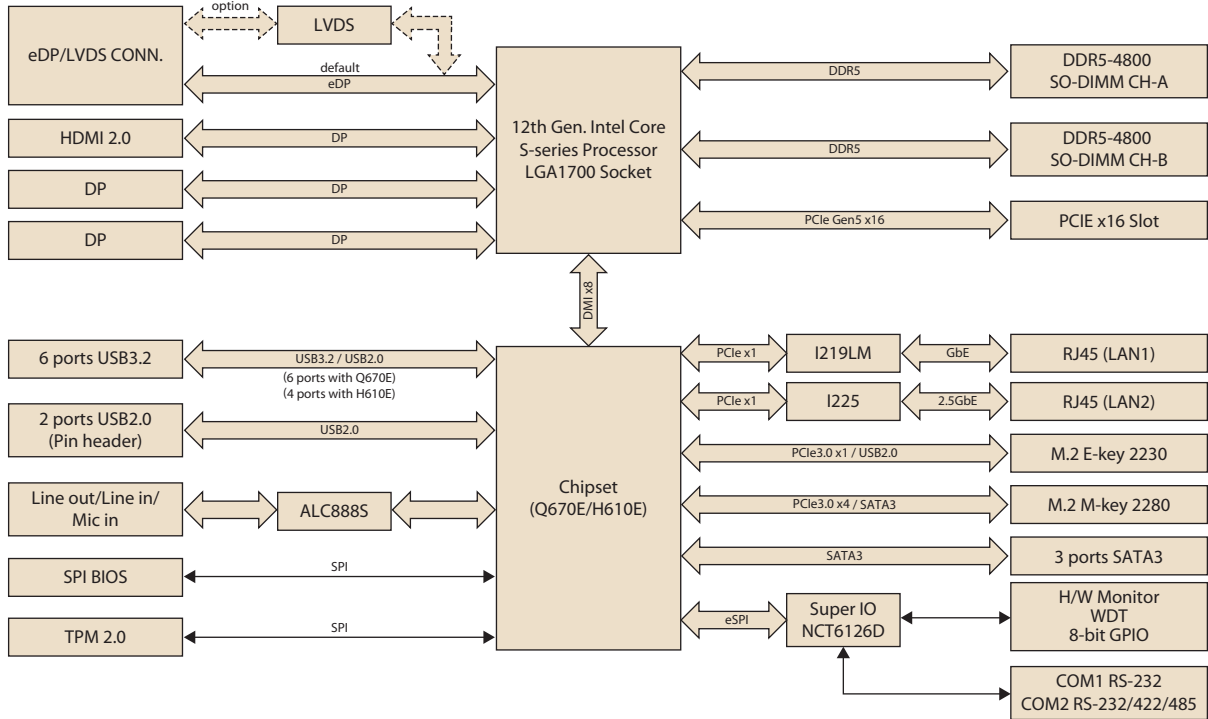
- 12th Gen Intel® Core™ Desktop Processors, Up to 16Core, support Q670E/ H610E chipset
- Dual channel DDR5 4800MHz, max. 64GB with two SODIMMs
- Super Speed I/O: PCIe x16 Gen5 (32GT/s), USB3.2 Gen2 (10Gbps), 2.5GbE
- Quad independent 4K displays with 2 DP, 1 HDMI, 1eDP
- Rich expansion: M.2 M key for NVMe SSD, M.2 E key for wireless, 3 SATA(RAID 0,1,5)
- TPM2.0 support
- SUSI API, WISE-DeviceOn and Embedded Software

Windows 10 ubuntu WISE-DeviceOn CE FCC RoHS COMPLIANT PRODUCT

### Specifications

	CPU	i9-12900E/ i9-12900	i9-12900TE	i7-12700E/ i7-12700	i7-12700TE	i5-12500E/ i5-12500/ i5-12400	i5-12500TE	i3-12100E/ i3-12100	i3-12100TE	G7400E	G7400TE	G6900E	G6900TE	
Processor System	Core Number	16	16	12	12	6	6	4	4	2	2	2	2	
	Base frequency	2.3GHz/ 2.4GHz	1.1GHz	2.1GHz	1.4GHz	2.9GHz/ 3.0GHz/ 2.5GHz	1.9GHz	3.2GHz	2.1GHz	3.6GHz	3.0GHz	3.0GHz	2.4GHz	
	Max Speed	5.0GHz	4.8GHz	4.8GHz	4.7GHz	4.5GHz/ 4.6GHz/ 4.4GHz	4.3GHz	4.2GHz/ 4.3GHz	4.0GHz	NA	NA	NA	NA	
	Smart cache	30M	30M	25M	25M	18M	18M	12M	12M	6M	6M	4M	4M	
	TDP	65W	35W	65W	35W	65W	35W	60W	35W	46W	35W	46W	35W	
	Chipset	Q670E / H610E												
	BIOS	AMI EFI 256Mb SPI												
Expansion Slot	M.2	1 M-Key for SSD, 1 E-Key for Wireless connection												
	PCIe x16	PCIe x16 Gen5(32GT/s) for discrete GPU card and storage devices												
Memory	Technology	Dual Channel DDR5, up to 4800 MHz (non-ECC)												
	Max. Capacity	64GB (up to 32GB per SODIMM)												
	Socket	2 x 262pin SODIMM												
Graphics	Controller	up to Intel® UHD Graphics 770												
	HDMI	HDMI2.0b, supports max. resolution 4096 x 2160 @ 60 Hz												
	DP	DP1.4a, supports max. resolution 4096 x 2304 @ 60 Hz												
	eDP	By Default, with internal pin header, supports max. resolution 4096 x 2304 @ 60 Hz												
	LVDS	By Option, internal pin header, supports single/dual channel 18/24-bit with maximum resolution up to 1920 x 1200 @ 60 Hz (eDP colay with LVDS)												
Multi Displays	up to 4 independent displays (combination of 2DP, 1HDMI, 1eDP)													
Network	ETHERNET	up to 2500 Mb/s												
	Controller	Intel I219LM and Intel I225-LM												
	Connector	2 x RJ45												
SATA	Max data transfer rate	600 MB/s												
	Channel	3 x SATAIII												
Rear I/O	DP	2												
	HDMI	1												
	Ethernet	2												
	USB	Up to 6 USB3.2 (Q670E: 6 USB3.2 Gen2 ; H610E: 4 USB3.2 Gen1 & optional 2 USB2.0)												
	Audio	1 (Line in/Line out/Mic in)												
Internal Connector	USB	2 (USB2.0)												
	LVDS/eDP	1 (LVDS colay with eDP)												
	Serial	2 (COM1 RS-232, COM2 RS232/422/485)												
	SATA	3												
	M.2	1 M-key (dimension: 2280) 1 E-key (dimension: 2230)												
	GPIO	8-bit												
Watchdog Timer	Output	System reset												
	Interval	Programmable 1 - 255 sec/min												
Power Requirements	Boost	92.7W												
	Typical	68.9W												
Environment	Temperature	Operating: 0 - 60° C (32 - 140° F), depends on CPU speed and cooler solution												
	Storage	Non-Operating: -40 - 85° C (-40 - 185° F)												
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")												

### Block Diagram



### Ordering Information

P/N	Chipset	HDMI	LVDS/eDP	DP	GbE	2.5GbE	COM	SATAIII	USB3.2	USB2.0	M.2 M key	M.2 E key	PCIex16	TPM	AMP
AIMB-278Q-00A1	Q670E	1	(1)/1	2	1	1	2	3	6	2	1	1	1	1	1
AIMB-278H-00A1	H610E	(1)	(1)/1	2	1	(1)	2	2	2/(2)	4	1	1	1	(1)	(1)

### Packing List

Part Number	Description	Quality
AIMB-278 motherboard	Mini-ITX 12th Gen Intel, with Q670E chipset	1

### Embedded OS/API

OS/API	Part No.	968 PN	Description
Windows 10			

### Optional Accessory

Part Number	Description
197005349T000	ADL-S LGA1700 CPU Cooler (for CPU TDP <= 65W)

### Optional Chassis

Part Number	Description
AIMB-B2000-15ZE	Mini-ITX chassis with 150W ATX power supply

### I/O View



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