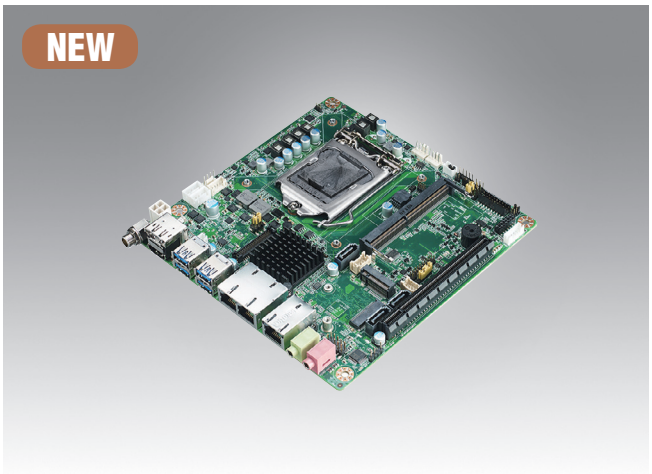
AIMB-286EF

Intel® Core™ i7/i5/i3 LGA 1151 Mini-ITX with DP++/HDMI/LVDS(eDP), 2 COM, Dual LAN, PCIe x16, M.2, DDR4, DC Input



Windows Embedded

WISE-PaaS/ DeviceOn

RoHS COMPLIANT 2002/95/EC

Features

- Supports Intel® 8th/9th Gen Core™ i processor (LGA1151) with Intel H310 chipset
- One 260-pin SO-DIMM up to 32GB DDR4 2666 MHz SDRAM
- Supports dual display of DP++/HDMI/LVDs (or eDP)
- Supports PCIe x16 (Gen 3), 1 M.2 B key & 1 M.2 E key, 4 USB 3.0 & 4 USB 2.0 and 3 SATA III
- Supports 12V DC Input and low profile height
- Supports TPM 1.2 / 2.0 (optional)
- Supports DeviceOn and Embedded Software APIs

Software APIs: SMBus, H/W Monitor, Watchdog, GPIO

Utilities: BIOS flash, Monitoring

Specifications

Processor System	CPU	i7-9700E/ i7-9700TE	i7-8700/ i7-8700T	i5-9500E/ i5-9500TE	i5-8500/ i5-8500T	i3-9100E/ i3-9100TE	i3-8100/ i3-8100T	G5400/ G5400T	G4900/ G4900T
	Core Number	8/8	6/6	6/6	6/6	4/4	4/4	2/2	2/2
	Max Speed	2.6GHz/ 1.8GHz	3.2GHz/ 2.4GHz	3.0GHz/ 2.2GHz	3.0GHz/ 2.1GHz	3.1GHz/ 2.2GHz	3.6GHz/ 3.1GHz	3.7GHz/ 3.1GHz	3.1GHz/ 2.9GHz
	SmartCache	12/MB/ 12MB	12/MB/ 12MB	9MB/9MB	9MB/9MB	6MB/6MB	6MB/6MB	2MB/2MB	2MB/2MB
	TDP	65W/35W	65W/35W	65W/35W	65W/35W	65W/35W	65W/35W	58W/35W	54W/35W
	Chipset	H310							
	BIOS	AMI EFI 128 Mbit SPI							
Expansion Slot	M.2	2, 1 x B key for SSD and 3G/4G (Type: 2242, 3042mm); with SIM card holder 1 x E key for wireless (Type: 2230mm)							
	PCIe x16 (Gen3)	16 GB/s per direction, 1 slot							
Memory	Technology	Single Channel DDR4 2666 MHz SDRAM							
	Max. Capacity	32GB (up to 32GB per SO-DIMM)							
	Socket	1 x 260 PIN DDR4 SO-DIMM (Non-ECC)							
Graphics	Controller	Intel HD Graphics							
	LVDS	Supports dual channel 24-bit up to 1920 x 1200 (colay with eDP)							
	HDMI 1.4	Yes, supports max. resolution 4096 x 2160 @ 24 Hz							
	eDP	Yes, with internal pin header, supports max. resolution 4096 x 2304 @ 60 Hz (BOM optional)							
	Display Port 1.2	Yes, supports 1 x DP++ with max resolution 4096 x 2304 @ 60 Hz							
	Dual Display	DP+HDMI, DP+LVDS (or eDP), HDMI + LVDS (or eDP)							
Ethernet	Interface	10/100/1000 Mbps							
	Controller	GbE LAN1/2: Realtek 8111G GbE LAN3: Intel i211AT							
	Connector	RJ-45 x 3							
SATA	Max Data Transfer Rate	600 MB/s (SATA 3.0)							
	Channel	3 (SATA III)							
Rear I/O	HDMI	1 (HDMI 1.4)							
	Display Port 1.2	1							
	Ethernet	3							
	USB	4 USB 3.0 (USB04 colay with M.2 B key for USB 3.0)							
	Audio	2 (Mic-in, Line-out)							
	DC Jack	1							
Internal Connector	USB	4 (USB 2.0)							
	LVDS/inverter	1							
	Serial	2 x RS-232 (COM1: RS-232, supports 5V/12V by jumper selection; COM2: RS-232/422/485 w/auto flow control, supports RS-232 by default, RS-422/485 supports by BOM option)							
	SATA	3 (SATA 3.0)							
	M.2	2, 1 x B key for SSD and 3G/4G (M.2 B key USB 3.0 colay with USB04), Type: 2242, 3042mm; 1 x E key for wireless, Type: 2230mm							
	IrDA	-							
	GPIO	16-bit							
Watchdog Timer	Output	System reset							
	Interval	Programmable 1 ~ 255 sec/min							
Power Requirements	Input power	12V DC Input							
		Intel Core i7-8700 3.2GHz, 1pcs 16GB DDR4 2666MHz SDRAM, +12V @ 17.095A							
Environment		Operating						Non-Operating	
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU speed and cooler solution						-40 ~ 85° C (-40 ~ 185° F)	
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")							

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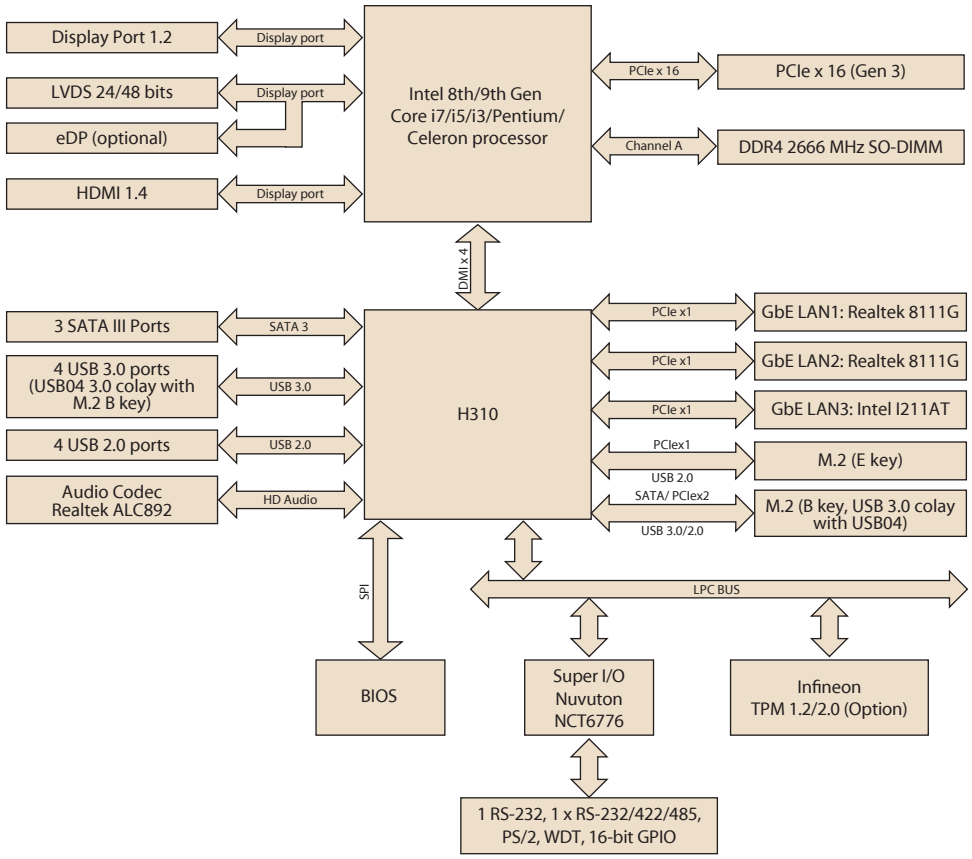
All product specifications are subject to change without notice.

Block Diagram



Ordering Information

P/N	Chipset	SO-DIMM	DP	LVDS/eDP	HDMI 1.4	GbE LAN	COM	SATAIII	USB3.0/2.0	M.2 B key	M.2 E key	PCIex16	TPM	AMP
AIMB-286F-EFA1E	H310	1	1	1 / (1)	1	3	2	3	4/4	1	1	1	(1)	0

*() BOM options available on MP version.

Packing List

Part Number	Description	Quantity
1700003194	SATA HDD cable	1
1700018785	SATA power cable (1 port, 25cm)	1
1701200220	1-to-2 serial port cable, 22cm	1
1960090424T001	I/O port bracket	1
2046286E00	Startup manual	1
1700023082-11	ATX 2*10P to 1*3P-2.0 25cm cable	1

Optional Chassis

Part Number	Description
AIMB-B2000-15ZE	Mini-ITX chassis with 150W ATX power supply
AIMB-B2000-00YE	Mini-ITX chassis (Optional external AC-DC 60W/84W Adaptor)

I/O View

Optional Accessories

Part Number	Description
1700029428-01	M cable USB-A 4P(F)*2/2*4P-2.0 25cm
1960053207N001	LGA1150 CPU cooler for CPU TDP ≦ 65W, 92.9 (W) x 92.9 (L) x 46 (H) mm
1960060732N001	LGA1150 CPU cooler for CPU TDP ≦ 45W, 80 (W) x 80 (L) x 32.2 (H) mm

Embedded OS/API

OS/API	Part No.	968 P/N	Description
Windows 10	20706WX9ES0000	968QW19ELE	img W10 19EL AIMB-286 64b 1809 ENU
Windows 10	20706WX9HS0001	968QW19HLE	Win 10 IoT Ent 2019 LTSC MultiLang ORY OEI High
Windows 10	20706WX9VS0001	968QW19VLE	img W10 19VL AIMB-286 64b 1809 ENU