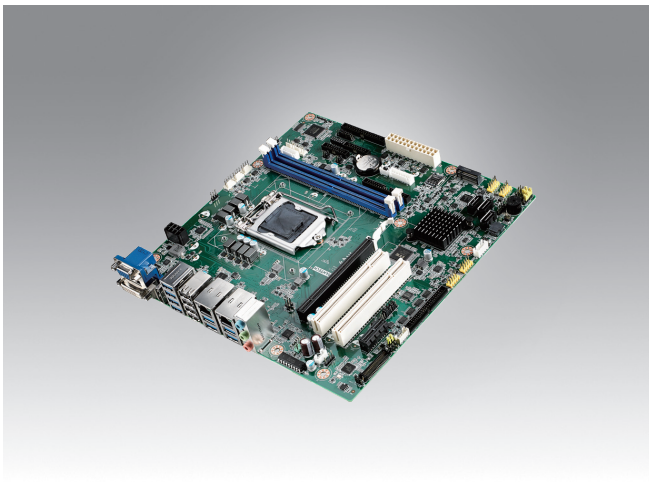
AIMB-506

Intel® 8th 9th Gen Core™ i7/i5/i3 LGA1151 MicroATX with VGA/DP/DVI-D/ eDP(LVDS), 14 COM, 8 USB 3.0, 12 USB 2.0, Dual LAN



Features

- Supports Intel® 8th/9th Gen Core i7/i5/i3 processor with H310 chipset
- Supports up to 14 COM, 8 USB 3.0, 12 USB 2.0, TPM 1.2/2.0 (optional)
- Supports Dual display of VGA, DP, DVI, eDP, LVDS (optional) and two GbE LAN
- Two DIMM sockets support up to 64 GB DDR4 2666 MHz SDRAM
- Supports WISE PaaS/Device-On, McAfee, Acronis 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	Pentium G5400/G5400T	Celeron 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	3.2 GHz/ 2.4 GHz	3.0GHz/ 2.2GHz	3.0 GHz/ 2.1 GHz	3.1GHz/ 2.2GHz	3.6GHz/ 3.1GHz	3.7GHz/ 3.1GHz	3.1GHz/ 2.9GHz
	L3 Cache	12MB/12MB	12MB/12MB	9MB/9MB	9MB/9MB	6MB/6MB	6MB/6MB	4MB/4MB	2MB/2MB
	TDP (W)	65W/35W	65W/35W	65W/35W	65W/35W	65W/35W	65W/35W	58W/25W	54W/35W
	Chipset	H310							
	BIOS	AMI EFI 128 Mbit SPI							
Expansion Slot	PCI	32-bit/33 MHz, 2 slot (F sku; G2 sku)							
	PCIe x 1 (Gen3)	1 GB/s per direction, 1 slot							
	PCIe x16 (Gen3)	16 GB/s per direction, 1 slot							
Memory	Technology	Dual Channel DDR4 2666 MHz SDRAM							
	Max. Capacity	64 GB/32 GB per DIMM							
	Socket	2 x 288-pin DIMM (Non-ECC)							
Graphics	Controller	Intel HD Graphics							
	LVDS	Supports dual channel 48 bit and up to 1920 x 1200 (optional)							
	eDP	Internal pin header, supports max. resolution 3840 x 2160 @ 60 Hz (F sku on board, G2 sku optional)							
	VGA	Yes, Max resolution 1920 x 1200 @ 60 Hz							
	DP	Supports max resolution 4096 x 2304 @ 60 Hz							
	DVI-D	Up to 1920 x 1200 @ 60Hz refresh rate							
	Dual Display	DP+DVI-D,DP+VGA,DVI-D+VGA,DP+eDP (LVDS),DVI-D+eDP (LVDS),VGA+eDP (LVDS)							
Ethernet	Interface	10/100/1000 Mbps							
	Controller	GbE LAN1:Realtek RTL8111G GbE LAN2:Realtek RTL8111G							
	Connector	RJ-45 x 2							
SATA	Max Data Transfer Rate	600 MB/s (SATA 3.0)							
	Channel	3							
Rear I/O	VGA	1							
	DVI-D	1							
	Ethernet	2 (F, G2 x2, L x1)							
	USB	12 (8 USB 3.0, 4 USB 2.0 on F sku) 8 (4 USB 3.0, 4 USB 2.0 on G2 and L sku)							
	Display port	1 (F and G2 only)							
	Audio	2 (Mic-In, Line-out)							
Internal Connector	USB	8 (F sku, 8 USB 2.0) 4 (G2, L sku, 4 USB 2.0)							
	Serial	14 (G2-FL sku: 12 x RS-232, 2 x RS-232/422/485; COM 3 and COM 7 support RS-232/422/485 auto flow control; COM1 and COM 2 support 5V/12V by jumper selection) 10 (G2-00 sku: 8 x RS-232, 2 x RS-232/422/485; COM 3 and COM 7 support RS-232/422/485 auto flow control; COM1 and COM 2 support 5V/12V by jumper selection) 2 (L sku: 2 x RS-232, COM1 and COM 2 support 5V/12V by jumper selection)							
	M.2 (B Key)	1 (2242/3042 with SIM card holder, F and G2 sku only)							
	SATA	3 x 600 MB/s (SATA 3.0)							
	Extended Display Port (eDP)/ LVDS	1 (F sku only; Default: eDP)							
	GPIO	16-bit GPIO							
	PS/2 (KBMS1)	1							
Watchdog Timer	Output	System reset							
	Interval	Programmable 1 ~ 255 sec/min							
Power Requirements		Intel Core i7-9700E, 16 GB DDR4 x2 pcs							
	Power On	+5V	+3.3V	12V_4P	12V	-12V	5VSB		
		0.7A	0.78A	3.462A	0.303A	0A	0.53A		
Environment		Operating							
	Temperature	0 ~ 60° C (32 ~ 140° F), depends on CPU speed and cooler solution							
Physical Characteristics	Dimensions	244 mm x 244 mm (9.6" x 9.6")							

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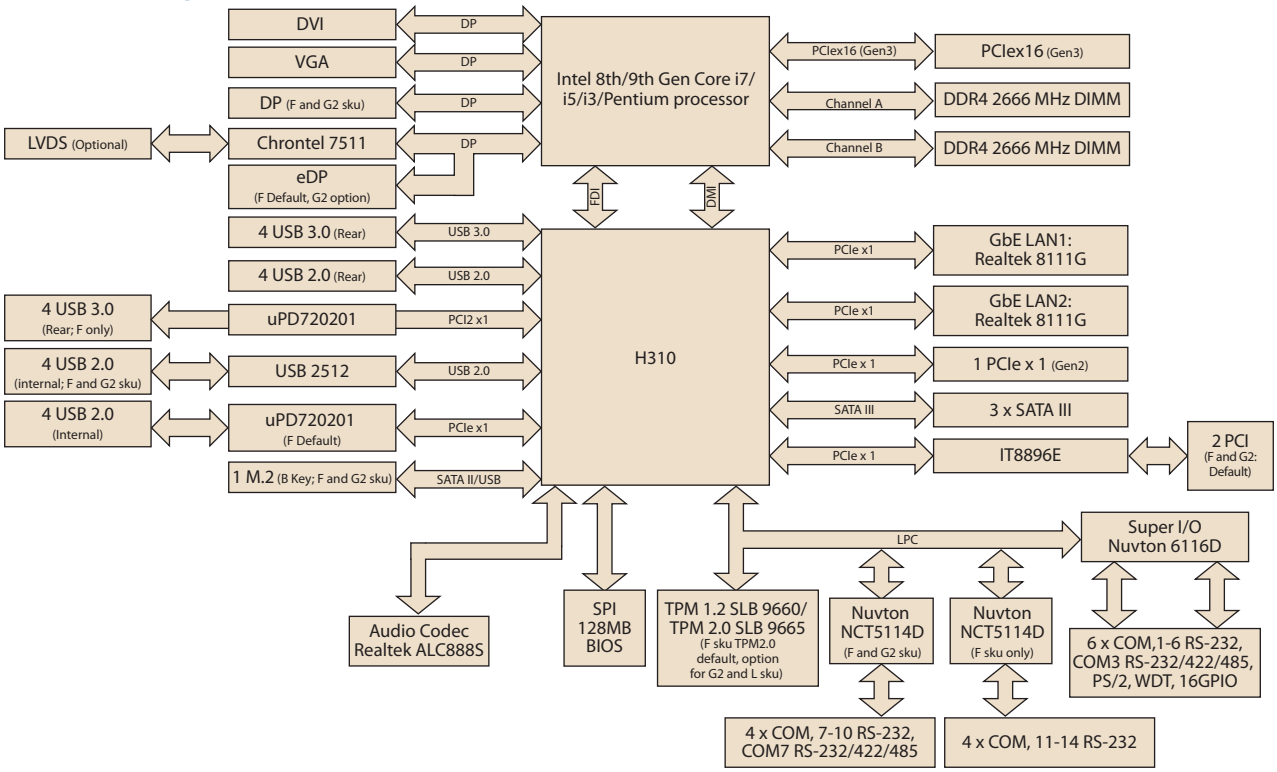
Block Diagram



Ordering Information

Part Number	PCH	Memory	VGA	DVI	DP	eDP/LVDS	USB 3.0/2.0	COM	SATA	LAN	PCIe x 16	PCIe x 1	M.2 B-Key	PCI slot	AMP
AIMB-506F-00A1E	H310	Non ECC	1	1	1	1/(1)	8/12	14	3	2	1	1	1	2	1
AIMB-506G2-00A1E	H310	Non ECC	1	1	1	(1)/(1)	4/8	10	3	2	1	1	1	2	1
AIMB-506L-00A1E	H310	Non ECC	1	1	(1)	-/-	4/4	2	3	1	1	1	0	0	(1)

*() BOM options available on MP version.

Riser Card

Part Number	Description
AIMB-RP10P-01A1E	1U riser card with 1 PCI expansion
AIMB-RP30P-03A1E	2U riser card with 3 PCI expansion
AIMB-RF10F-01A1E	1U riser card with 1 PCIe x16 expansion

Packing List

Part Number	Description	Quantity
1700003194	Serial ATA HDD data cable	2
17AD14GS1400013V04*	4 in 1 COM cable 500mm (IDE 40-pin 2.0mm)	1
1700031615-01	1-to-2 serial port cable, 50cm	1
1960094997T001	I/O port bracket	1
2046050600	Startup manual	1

*Only for F and G2 Sku.

I/O View

Optional Accessories

Part Number	Description
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
1700000447	1-to-4 serial ports cable kit, 45cm
1701400181	1-to-4 serial ports cable kit, 18cm
1700002204	Dual port USB 2.0 cable 27cm with bracket
1700018699	A CABLE 1*6P-2.5/M-DIN 6P(F)*2 25cm

Note: Purchasing AIMB-506's proprietary CPU cooler from Advantech is a must; other brands of CPU coolers are NOT compatible with AIMB-506.

Embedded OS/API

OS/API	Part No	Description
Win10 IoT EnT	20706WX9HS0057	img W10 19HL
	20706WX9VS0061	img W10 19VL
	20706WX9ES0071	img W10 19EL