AIMB-219 B1

Mini-ITX Motherboard
Intel® Core™ i3 and Core™ 3 Processor
Intel Atom® x7000E/x7000RE Processor
(Twin Lake/Amston Lake/Alder Lake-N)

Features

- Intel® Core™ i3, Core™ 3 Processor and Atom® x7000E/x7000RE Processor
- Up to 16GB DDR5 4800MT/s with one SO-DIMM
- Triple independent display with 1 DP, 1 HDMI, 1 LVDS(or eDP)
- Abundant I/O expansion: 1 M.2 B-key & 1 M.2 E-key, 3 USB 3.2 Gen2x1, 5 USB 2.0, 1 USB Type-C and 6 COM
- Mini-ITX low profile motherboard, fanless design
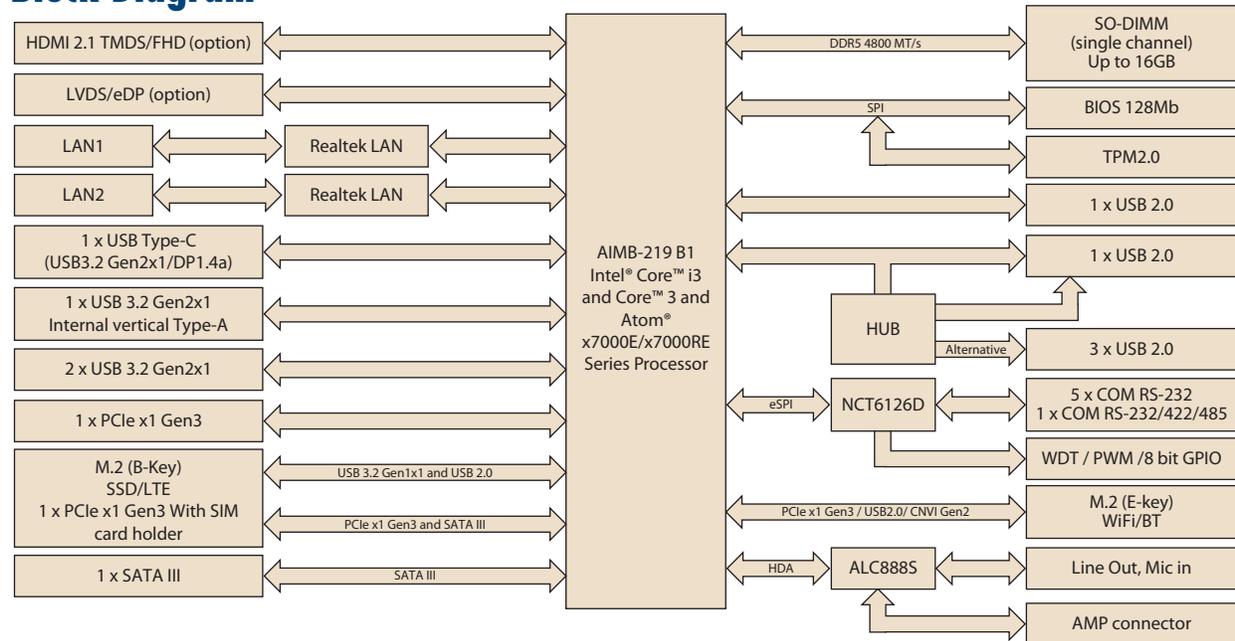- Supports Device-On and Embedded Software APIs

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

Utilities: BIOS flash, Monitoring

Specifications

Processor System	CPU (10nm)	Core™ 3 N355	N250	N150	i3-N305	N200	N97	N50	x7835RE	x7433RE	x7213RE	x7211RE
	Core Number	8	4	4	8	4	4	2	8	4	2	2
	Base frequency (GHz)	1.9	1.3	0.8	1.8	1	2	1	1.3	1.5	2	1
	TDP (W)	15	6	6	15	6	12	6	12	9	9	6
	BIOS	AMI 256 Mbit SPI										

Expansion Slot	M.2	1 x E-Key for wireless module (WiFi/BT), 1 x B-key for storage (SSD/LTE)
	PCIe	1 x PCIe x1 Gen3 (8GT/s)

Memory	Technology	Single channel DDR5 4800 MT/s
	Max. Capacity	16 GB
	Socket	1 x 262pin SO-DIMM

Graphics	Controller	Intel® UHD Graphics
	HDMI	1 x HDMI 2.1 TMDS, up to 4Kx2K @ 60 Hz (refer to Ordering Information)
	DP	1 x DP 1.4a, up to 4096x2304 @ 60 Hz (via USB Type-C)
	LVDS	1 (default, pin header, supports dual channel 18/24-bit, up to 1920 x 1200 @ 60 Hz)
	eDP	1 (option, pin header, up to 4096 x 2304 @ 60 Hz)
	Multi Displays	Triple displays

Network	Ethernet	10/100/1000/2500 Mbps
	Controller	RTL8111K (1GbE) or RTL8125BG (2.5GbE), refer to Ordering Information
	Connector	2 x RJ45

Audio	Codec	Realtek ALC888S, High Definition Audio (HD), Line out, Mic-in
	Amplifier	Yes, 6W

SATA	Max data transfer rate	6.0 Gb/s
	Channel	1 (SATA III)

Rear I/O	DP (via USB Type-C)	1
	HDMI	1
	Ethernet	2
	USB	2 x USB 3.2 Gen2x1 + 1 x USB 3.2 Gen2x1 Type-C
	Audio	1 (Line-Out, Mic-In)

Internal Connector	USB	5 x USB 2.0 + 1 x USB 3.2 Gen2x1(Internal vertical Type-A)
	LVDS/eDP	1 (eDP colay with LVDS)
	Serial	6, COM1~COM2: Support RS-232 by default COM3: Support RS-232/422/485(BOM option), auto flow control by BIOS COM4: Support RS-232 by default; CCtalk by BOM option COM5: Support RS-232 by default; TTL by BOM option COM6: Support RS-232 by default; Ring-in 5V/12V select by jumper
	SATA	1
	M.2	1 x B-key (2242/2280/3042, for storage) 1 x E-key (2230, for WiFi/BT)
	GPIO	8-bit

Watchdog Timer	Output	System reset
	Interval	Programmable 1 ~ 255 (second or minute)

Power Requirements	Input voltage	12V DC-in	
	Connector	DC Jack, Internal 4-pin ATX	
	Power consumption	Configuration	Intel® Core™ 3 N355, 1pcs 16 GB DDR5 4800MT/s SO-DIMM
		Max.	43.1 W
		Typical	21.2 W

Environment	Temperature	Operating: 0 ~ 60 °C (32 ~ 140 °F) or -20 ~ 70 °C (-4 ~ 158 °F) for Z SKU
	Storage	Non-Operating: -40 ~ 85 °C (-40 ~ 185 °F)

Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")

ADVANTECH | Server Boards

Block Diagram

Ordering Information

P/N	CPU	HDMI 2.1 TMDS	HDMI FHD	LVDS/eDP	USB Type-C	2.5 GbE	GbE	COM	SATAIII	USB3.2	USB2.0	M.2 B key	M.2 E key	PCIex1	TPM	AMP	Thermal Solution	Operating Temp.
AIMB-219NC3F-LDB1	i3-N305	1	0	1/(1)	1	2	(2)	6	1	3	5	1	1	1	1	1	Passive	0 – 60 °C
AIMB-219N2F-LDB1	N200	0	1	1/(1)	(1)	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C
AIMB-219N9F-LDB1	N97	0	1	1/(1)	1	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C
AIMB-219N9F-LDB1U	N97	0	1	1/(1)	1	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C
AIMB-219N5L-LDB1	N50	0	1	0	0	0	1/(1)	2/(4)	1	3	2/(3)	1	1	(1)	1	(1)	Passive	0 – 60 °C
AIMB-219M8F-LDB1	x7835RE	1	0	1/(1)	1	2	(2)	6	1	3	5	1	1	1	1	1	Passive	0 – 60 °C
AIMB-219M4F-LDB1	x7213RE	0	1	1/(1)	(1)	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C
AIMB-219M6F-LDB1	x7433RE	0	1	1/(1)	1	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C
AIMB-219Z6F-LDB1	x7433RE	0	1	1/(1)	1	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	-20 – 70 °C
AIMB-219M2L-LDB1	x7211RE	0	1	0	0	0	1/(1)	2/(4)	1	3	2/(3)	1	1	(1)	1	(1)	Passive	0 – 60 °C
AIMB-219WC3F-LDB1	Core™ 3 N355	1	0	1/(1)	1	2	(2)	6	1	3	5	1	1	1	1	1	Passive	0 – 60 °C
AIMB-219W2F-LDB1	N250	0	1	1/(1)	(1)	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C
AIMB-219W1F-LDB1	N150	0	1	1/(1)	1	0	2	4/(2)	1	3	5	1	1	1	1	(1)	Passive	0 – 60 °C

*() Supports by BOM options

Packing List

Part Number	Description	Quantity
AIMB-219 B1 Board	AIMB-219 B1 motherboard	1
1700003194-21	SATA HDD cable	1
1700034404-02	1-to-1 serial port cable, 50cm	1
1960115632T001	I/O port bracket	1
2046021902	Startup manual for AIMB-219	1
1970005854T001	Fanless heatsink for CPU i3-N305, N97, x7835RE, x7433RE (-20 ~ 70 °C) and Core™ 3 N355	1
1960064228T011	Fanless heatsink for CPU N200, N50, x7213RE, x7433RE(0 ~ 60 °C), x7211RE, N250 and N150	1
19350304A0	M.2 Screw, M3x4L	2
1910003418-01	M.2 Post, F=M3x4L M=M3x3L B=5 H=5.2	1
1700018785-01	SATA power cable	1

I/O View

Optional Chassis

Part Number	Description
AIMB-B2000-00YE	Mini-ITX chassis with optional DC Adaptor

Optional Accessories

Part Number	Description
1700034405-01	1-to-1 USB cable, 50cm

Embedded OS/API

OS	Part Number	Description
Win11	20706WLE1S0127	img W11 24EL AIMB-219B1 64b 24H2 ENU
Win11	20706WLH1S0127	img W11 24HL AIMB-219B1 64b 24H2 ENU
Win11	20706WLV1S0127	img W11 24VL AIMB-219B1 64b 24H2 ENU
Ubuntu	20706U24DS0048	img Ubuntu Desktop AIMB-219B1 64b 24.04 ENU
Ubuntu Pro	20706U24ES0010	img UbtPro-E AIMB-219B1 64b 24.04 ENU
Ubuntu Pro	20706U24HS0010	img UbtPro-H AIMB-219B1 64b 24.04 ENU
Ubuntu Pro	20706U24VS0010	img UbtPro-V AIMB-219B1 64b 24.04 ENU