

C7146ES-IM-AA

3.5" SBC, Intel® Core™ Ultra Processor, DDR5 SO-DIMM, HDMI, DP, USB-C, LVDS, Dual-LAN, Multiple COM, 9-36V DC-in put

Features

- Four display configurations by multiple interface: HDMI 2.0, DP 1.4, USB-C, LVDS/eDP
- Equipped with three M.2 slots for LTE/5G/WiFi 6E/BT 5.2 connectivity
- Wide range of power inputs (9~36V) and operating temperatures (-20°~60°)



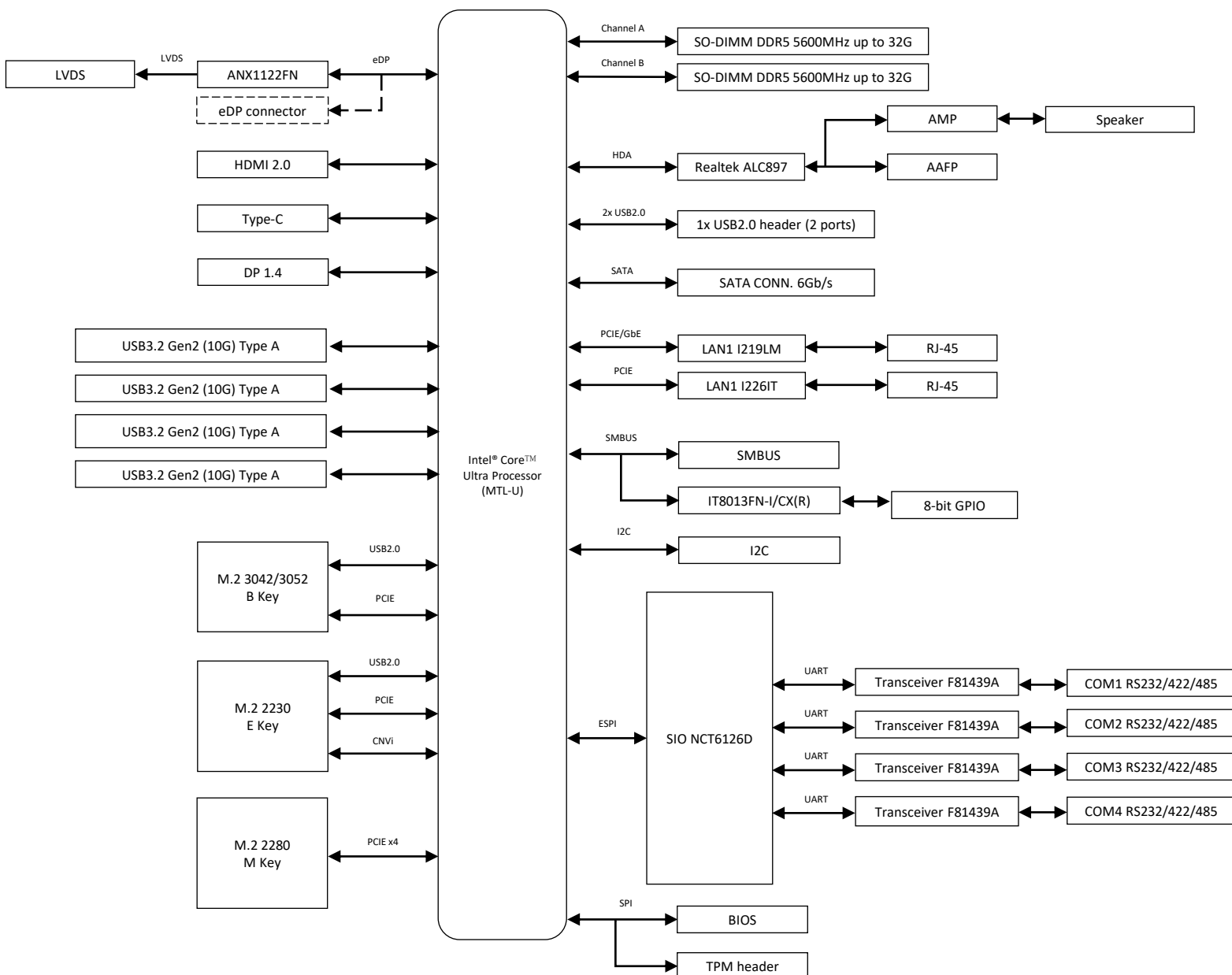
Specifications

Processor System	CPU	Intel® Core™ Ultra 7 processor 165U, vPro supported
	TDP	15W
	# of Cores	12
	Base Freq.	1.7 GHz
	Max Turbo Freq.	4.9 GHz
Memory	Technology	DDR5 5600 MHz
	Max.	64GB
	Socket	2 x SO-DIMM
Display	Controller	Intel® Xe LPG Graphics
	HDMI	1, Supports HDMI 2.0 up to 4096 x 2160 @ 60 Hz
	Display Port	1, Supports DP 1.4 up to 5120 x 3200 @ 60 Hz
	USB-C	1, Supports USB3.2 Gen2 (DP 1.4 Alt. Mode)
	LVDS	1, Supports 1920 x 1080 @ 60 Hz (co-lay with eDP)
	Embedded Display Port	1, Supports eDP 1.4b (co-lay with LVDS, reserved and support by request)
Expansion Slot	M.2	4 Display Configuration: HDMI + DP + USB-C + LVDS/eDP
		1 x 3042/3052 M.2 B Key for LTE/5G device connected to Nano-SIM socket (PCIe x1)
		1 x 2230 M.2 E key for WIFI 6E/BT 5.2 device (USB 2.0/ PCIe x1/ CNVi)
		1 x 2280 M.2 M key for PCIe storage (PCIe x4)
Ethernet	Speed	10/100/1000Mbps/2.5G
	Controller	1 x Intel® i219LM, 1 x Intel® I226IT
	Connector	2 x RJ-45
Audio	Codec	Realtek ALC897 High Definition Audio
Storage	SATA port	1 x SATA Gen 3.0, up to 6Gb/s
Rear I/O	HDMI	1
	Display Port	1
	USB-C	1
	USB 3.2 Gen2	4 (10G)
	LED (Back)	Power status, HDD R/W
	Ethernet	2
Internal Connectors & Jumpers	Serial Port	4 (RS232/422/485)
	USB2.0	1 x Header support additional 2 x USB2.0 ports
	Chassis Fan Header	1
	Chassis Intrusion Connector	1 (2-pin)
	Front Panel Audio Header (AAFP)	1
	Internal Stereo Speaker Header	1 (4-pin) with AMP IC
	System Panel Header	1
	SATA Power Header	1 (4-pin)
	GPIO Header	1 (8-bit)
	SMBus Header	1 (4-pin)
	I ² C Header	1 (3-pin)
	Power Connector	1 x WAFER Header (4-pin)
	AMP Header	1
	COM Debug Header	1
	AT/ATX Select Jumper	1 (2-pin)
	LVDS Panel Power selection Jumper	1 (3-pin)
	COM RS232 Ring/5V/12V Selection Jumper	2 (6-pin)

Specifications

Watchdog Timer	BIOS	YES
Security	TPM	1 x SPI TPM header
Power	Power Type	DC power input
	Voltage	9V-36V
Operating System	Microsoft Windows	Windows 10 IoT Enterprise
	Linux	Ubuntu
Environment	Operating Temperature	-20~60° C
	Non-Operating Temperature	-40~85° C
	Relative Humidity	10 to 95% (non condensing)
Dimension	Form Factor	3.5", 146 x 105 mm
Certification	EMC, Safety	CE, FCC, BSMI, VCCI, ISED, EN62368

Block Diagram



Order Information

Model name	Part number	Description
C7146ES-IM-AA	90ME093*	BGA2049, ULTRA 7, 165U, HDMI, DP, USB C, MB

* The part number might vary for different regulations and package. Please consult the TPM in your region for exact 90PN.

Packing List

Part number	Description	Quantity
14013*	SATA 6G CABLE	1

* The part number might vary due to part number revision.