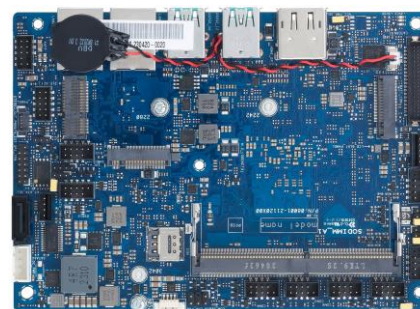


# X641ES-IM-AA

3.5" SBC, Intel Atom® Processor, DDR4 SO-DIMM, DP, HDMI, LVDS, Dual-LAN, Multiple COM, 9-36V DC-in put

## Features

- Up to 6 COM ports, includes 2 x RS-232/422/485, 4 x RS232
- Supports 3 display configuration by multiple interface: DP/HDMI/LVDS
- Supports I2C, SMBus and GPIO
- Wide temperature range endurance: -40~85 °C



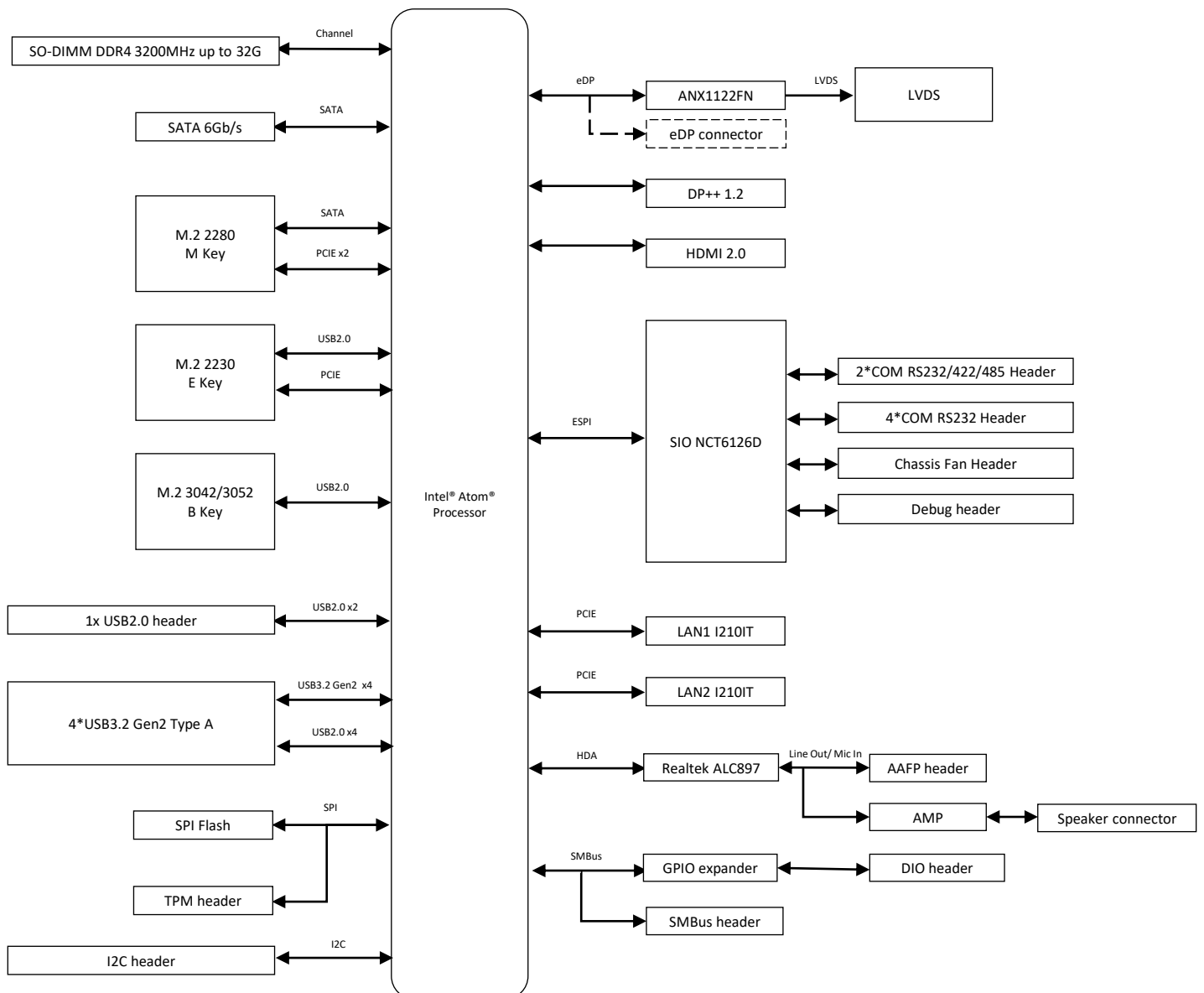
## Specifications

<b>Processor System</b>	CPU	Intel Atom® X6413E
	TDP	9W
	# of Cores	4
	Base Freq.	1.5 GHz
<b>Memory</b>	Max Turbo Freq.	3.0 GHz
	Technology	DDR4 3200 MHz, In-Band ECC (IBECC)
	Max.	32GB
	Socket	1 x SO-DIMM
<b>Display</b>	HDMI	1, Supports HDMI 2.0 up to 4K x 2K @ 60 Hz
	Display Port	1, Supports DP++1.2 up to 4096 x 2160 @ 60 Hz
	Embedded Display Port	1, Supports eDP1.2 (co-lay with LVDS)
	LVDS (default)	1, Supports 1920 x 1080 @ 60 Hz (co-lay with eDP)
<b>Expansion Slot</b>	Multi Display	3 Display Configuration: HDMI+DP+LVDS/eDP
	M.2	1 x M.2 2230 E key socket (USB2.0, PCIe) supports Wi-Fi/BT module
		1 x M.2 2280 M key socket (SATA, PCIe) supports M.2 SSD/PCIe mode
1 x M.2 3042/3052 B key (USB 2.0) supports LTE connected to Nano-SIM socket		
<b>Ethernet</b>	Speed	10/100/1000Mbps
	Controller	2 x Intel® i210-IT, supports WOL/PXE
	Connector	2 x RJ-45
<b>Audio</b>	Codec	Realtek ALC897 High Definition Audio
<b>Storage</b>	SATA port	1 x SATA Gen 3.0, up to 6Gb/s
<b>Rear I/O</b>	HDMI	1
	Display Port	1
	USB 3.2 Gen2	4 (Type A)
	LED (Back)	Power status, HDD R/W
	Ethernet	2
<b>Internal Connector &amp; Jumper</b>	Serial Port	6 (2 x RS-232/422/485, 4 x RS-232)
	USB2.0	1 x Header support additional 2 x USB2.0 connectors
	Chassis Fan Header	1 (PWM+DC Mode)
	Chassis Intrusion Header	1
	Front Panel Audio Header (AAFP)	1
	System Panel Header	1 (10-1 Pin)
	Clear CMOS Jumper	1
	SATA Power Header	1
	COM Debug Header	1
	SMBus Header	1
	I <sup>2</sup> C Header	1
	GPIO Header	1 (8-bit)
	AT/ATX jumper	1
	AMP header	1
	Power Connector	1 x 4-pin ATX Power Connector

# Specifications

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

# Block Diagram



## Order Information

Model name	Part number	Description
X641ES-IM-AA	90ME0780*	FCBGA1493, X6413E, HDMI, DP++, LVDS, 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.