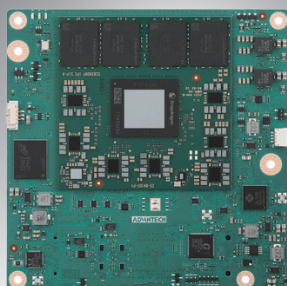


SOM-6820

Qualcomm X-Elite Processors COM Express Compact Type6 Module

Preliminary



Features

- COM Express® Compact Module Type6 R3.1 Pinout
- Qualcomm Snapdragon X-Elite, up to 12C/45W
- LPDDR5x supports up to 64GB 8448MT/s
- Integrated NPU supports AI 45 TOPs
- Windows11 on ARM, UEFI BIOS support
- Supports Embedded Software APIs, DeviceOn and Edge AI SDK

Software APIs:



Windows Embedded

iManager WISE-DeviceOn C E FC

Specifications

Form Factor	Form Factor	COM Express Compact			
	Pin-out Type	COM Express R3.1 Type 6 compatible			
Processor System	CPU	X1E-00-1DE	X1E-78-100	X1P-66-100	X1P-42-100
	Cores	12	12	10	8
	Max Multicore Frequency	3.8GHz	3.4GHz	3.4GHz	3.2GHz
	Boost Frequency	4.3GHz (Dual-Core)	N/A	4.0GHz (Single-Core)	3.4GHz (Single-Core)
	Total Cache	42MB	42MB	42MB	30MB
	Default TDP	45W	45W	45W	45W
Memory	BIOS	UEFI			
	Technology	LPDDR5x			
	Speed	8448 MT/s			
Graphics	Max. Capacity	Up to 64GB			
	Controller	Qualcomm Adreno GPU			
	3D/HW Acceleration	HW Encode: Supports H.264, HEVC, AV1: UHD60 HW Decode: Supports H.264, HEVC, VP9, AV1: UHD120 API: Supports DX12.2, OpenGL ES 3.2, Vulkan 1.3, OpenCL 3.0 full profile, Adreno NN direct, GMEM, DirectML			
AI	Technology	Qualcomm Hexagon NPU, up to 45 TOPs			
Display	LCD (LVDS/eDP)	1port LVDS Dual channel: 1920 x 1200 @60Hz/eDP 4096 x 2304 @60Hz			
	DP	DisplayPort 2.1 HBR3: 4096 x 2304 @ 60Hz			
	Multiple Display	Quad Simultaneous Independent Display			
	PEG	PCIe Gen4, 8 lanes, Bifurcate to 1 x8			
	PCI Express	PCIe: PCIe gen3 & 4, Up to 8 lanes -4 PCIe Gen4 lanes, Bifurcate to x4 -2 PCIe Gen3 lanes, Bifurcate to x2 -2 PCIe Gen3 lanes, Bifurcate to x2 without SATA			
Serial Bus	SMBus	Yes			
	I2C Bus	Yes			
Ethernet	Gigabit	Realtek RTL8153B controller ; Speed: 10M / 100M / 1000M			
I/O	SATA3.0	Up to 4 Ports (6Gbps)			
	USB3.2 (Gen2)	4 Ports (10 Gbps)			
	USB2.0	8 Ports (480 Mbps)			
	SPI Bus	Yes. For BIOS EEPROM, Support Dual BIOS failsafe			
	GPIO	8-bit			
	Audio Interface	Soundwire			
	Watchdog	65536 level, 0 ~ 65535 sec			
	COM Port	2 Ports (2-Wire)			
	MIPI-CSI	2 Ports, 4 lanes FPC on Module			
	TPM	TPM2.0			
	Type	ATX: Vin, VSB; AT: Vin			
Power	Supply Voltage	Vin: 12V; VSB: 4.75V ~ 5.25V; RTC Battery: 2.0V ~ 3.3V			
	Power Consumption (Max.)	TBD			
	Power Consumption (Idle)	TBD			
Environment	Operating Temperature	Standard: 0 ~ 60 °C (32 ~ 140 °F) Extend: -40 ~ 85 °C (-40 ~ 185 °F)			
	Storage Temperature	-40 ~ 85 °C (-40 ~ 185 °F)			
	Humidity	Operating: 40 °C@95% relative humidity, non-condensing Storage: 60 °C@95% relative humidity, non-condensing			
	Vibration Resistance	3.5 Grms			
Mechanical	Dimensions	95 mm x 95 mm (3.74" x 3.74")			

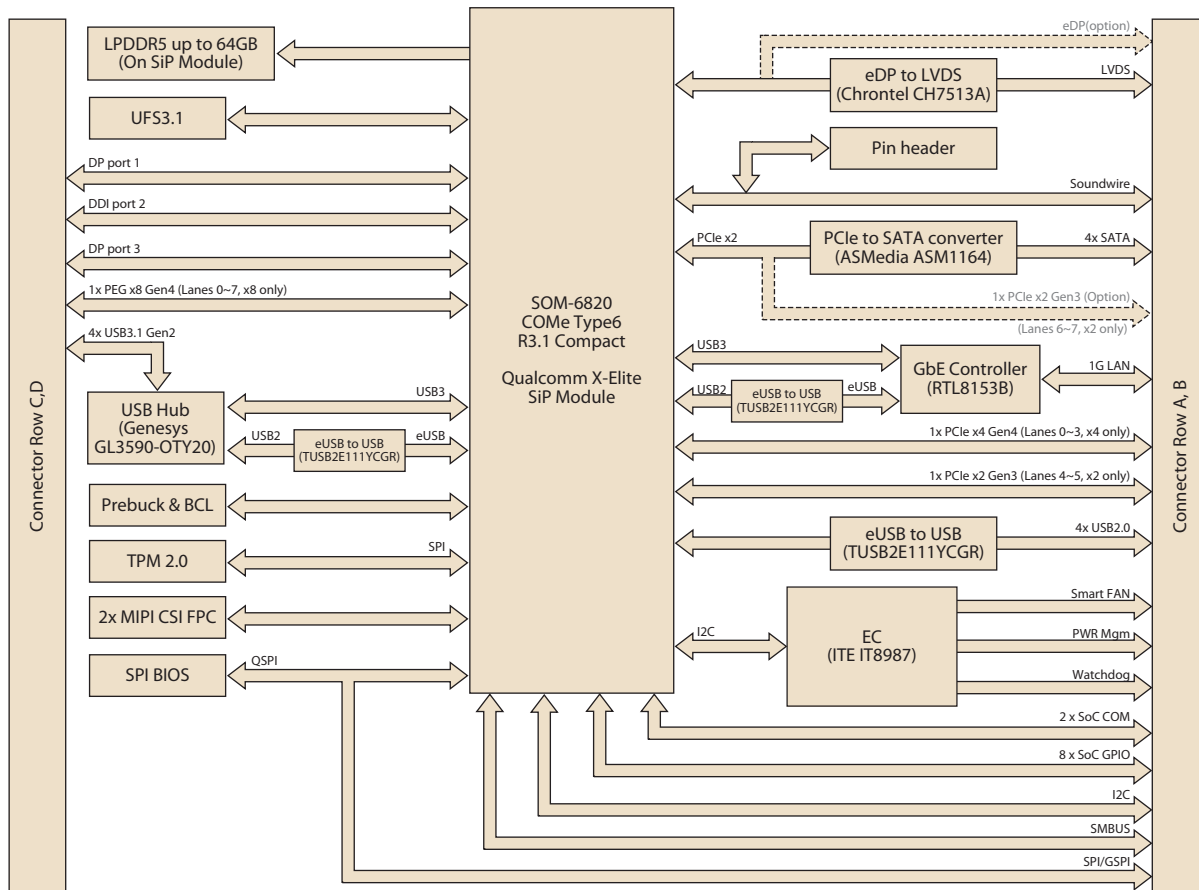
ADVANTECH

Computer On Modules

All product specifications are subject to change without notice.

Last updated: 29-May-2025

Block Diagram



Ordering Information

Part No.	CPU	Core	Graphics	Base Freq.	Max. Boost Freq.	GFX HFM	GFX Burst Mode	CPU TDP	EMMC	IBEC	Thermal solution	Operating Temp.
TBD												

Any other SKUs or combination is project based support. Please contact sales for details.

Development Board

Part No.	Description
SOM-DB5830-00A3	COMe Devel. Board COMe R3.1 Type6 pin-out (LVDS) 0 ~ 60 °C
SOM-DB5830A-00A3	COMe Devel. Board COMe R3.1 Type6 pin-out (eDP) 0 ~ 60 °C

Optional Accessories

Part No.	Description
TBD	Semi-Heatsink
TBD	QFCS Cooler

Embedded OS

OS	Part No.	Description
Win11	TBD	TBD

Packing List

Part No.	Description	Quantity
-	SOM-5885 COM module	1
TBD	Heatspreader	1