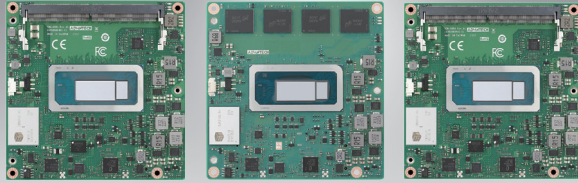


SOM-6884

13th Gen Intel® Core™ Processor (Code Name: Raptor Lake-P) COM Express® Compact Type 6



SOM-6884 A1

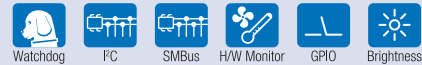
SOM-6884 A2

SOM-6884 A3

Features

- 13th Generation Intel® Core™ Processor
- COM Express R3.1 Compact Module Type 6 Pinout
- Dual channel DDR5 memory up to 64GB, 4800MT/s (A1 version)
- Dual channel LPDDR5 on-board memory up to 64GB, 6000MT/s (A2 version)
- High speed I/O: 12x PCIe Gen4, Extra 4x PCIe Gen4 (A2 version), 8x PCIe Gen3, 2x USB4 & 4x USB3.2 Gen2
- Supports SUSI, DeviceOn and Edge AI Suite

Software APIs:

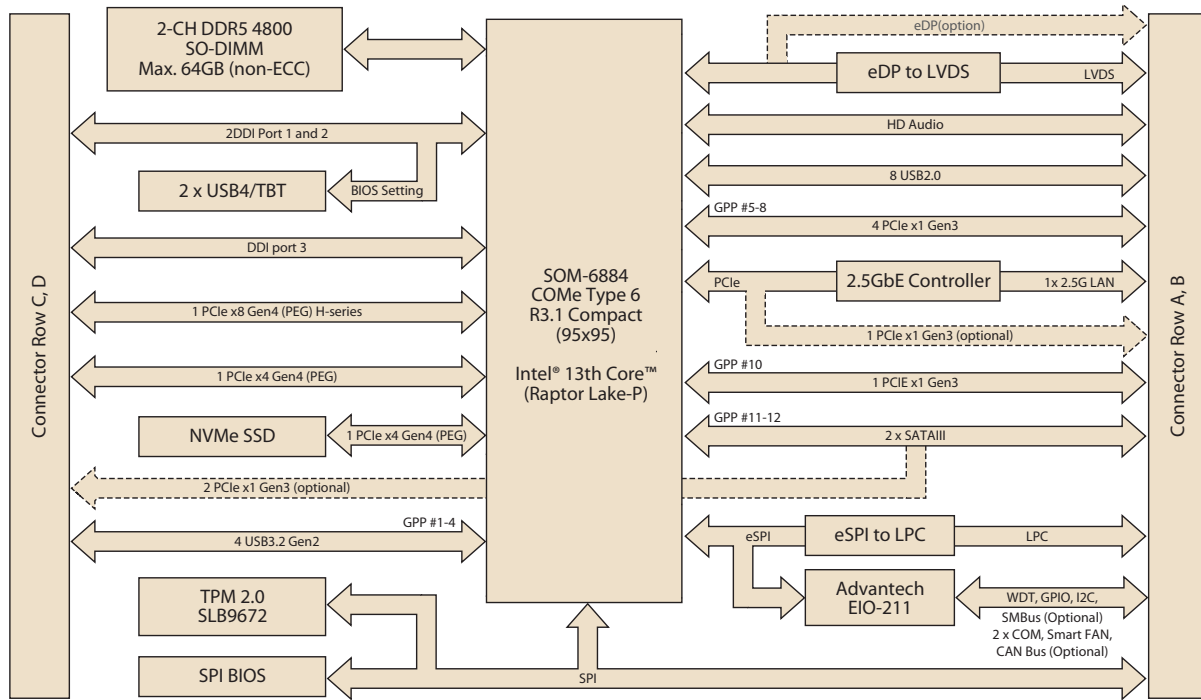


Specifications

Form Factor	Form Factor Pin-out Type	COM Express Compact Module COM Express R3.1 Type 6 compatible
Processor System	CPU	13th Gen Intel® Core™ Processor H series 13th Gen Intel® Core™ Processor P Series 13th Gen Intel® Core™ Processor U series 13th Gen Intel® Processor U300E
	P-core Base/Turbo Frequency	2.5/5.0GHz 1.9/4.8GHz 1.7/4.9GHz 1.10 GHz /4.30 GHz
	E-core Base/Turbo Frequency	1.8/4.0GHz 1.2/3.7GHz 1.2/3.7GHz 800 MHz /3.20 GHz
	Cores	14C (6P+8E) 14C (6P+8E) 10C (2P+8E) 5C (1P+4E)
	Cache	24M 24M 12M 8M
CPU TDP	45W 28W 15W 15W	
Memory	Technology	A1 version: DDR5, 4800MT/s A2 version: LPDDR5, 6000MT/s A3 version (U300E): DDR5, 4800MT/s
	Channel/Socket	A1 version: Dual Channel, 2 Sockets SODIMM, 1DPC A2 version: Dual Channel, Memory Down A3 version (U300E): Dual Channel, 2 sockets SODIMM, 1DPC
	ECC support	IBECC Supported by Specific CPU SKUs
Graphics	Controller	Intel® Iris® Xe Graphics/UHD Graphics Architecture
	Max Graphic Frequency	1.4GHz 1.3GHz
	3D graphic HW acceleration HW Media Acceleration	DX12, Open GL 4.6, Vulkan 1.2 oneVPL
Display	Encode/Decode	H.2641/AVC, H.265/HEVC
	LCD	LVDS dual channel: 1920 x 1200@60Hz (option support eDP1.4b 4096 x 2304@60Hz, 24bpp) 3 DDI ports support configurable HDMI/DisplayPort
	DDI	-HDMI 2.0b: 4Kx2K 48-60Hz 24bpp -DisplayPort 1.4a: 4096x2304 60Hz 36bpp
Expansion	Multiple Display	Four displays with each display combinations
	PEG	A1 version: -PEG (H series): PCIe Gen4, 12 lanes, Bifurcate to 1 x8, 1 x4 -PEG (U series): PCIe Gen4, 4 lanes, Bifurcate to 1 x4 A2 version: -PEG (H series): PCIe Gen4, 16 lanes, Bifurcate to 1 x8, 2 x4 -PEG (U series): PCIe Gen4, 8 lanes, Bifurcate to 2 x4 PCIe: PCIe gen3, Up to 8 lanes & Up to 6 end devices A3 Version (U300E): -PEG(U300E): PCIe Gen 4, 4 lanes, Bifurcate to 1x 4
Serial Bus	PCI Express	A1 version: Default 5 lanes, Option 8 lanes with LAN & 2x SATA A2 version: Default 6 lanes, Option 8 lanes with 2x SATA A3 Version (U300E): PCIe Gen 4, 4 lanes, Bifurcate to 1x 4
	SMBus	Yes
Ethernet	I2C Bus	Yes
	Gigabit	Intel® i226 controller; 10M/100M/1000M/2.5Gbps
I/O	SATA3.0	2 Ports (6Gbps)
	Onboard Storage	On-board NVME SSD (Optional; Max. Capacity, 512GB)
	USB 4	2 Ports (SOM-MZ20 required, MUX with DDI1/2)
	USB 3.2 (Gen2)	4 Ports (10Gbps)
	USB 2.0	8 Ports (480Mbps)
	LPC	Yes
	SPI Bus	Yes
	GPIO	8-bits GPIO
	Watchdog	65536 level, 0 – 65535 sec
	CAN Bus	Support one CAN Bus option from COM Port
Power	COM Port	2 Ports (2-Wire)
	TPM	TPM2.0
Environment	Smart Fan	2 Ports: 1 port on COM module (Notice: the input voltage of fan is aligned to Vin); 1 port on carrier board
	Type	ATX: Vin, VSB; AT: Vin
	Supply Voltage	Vin: 8.5V – 20V; VSB: 4.75V – 5.25V; RTC Battery: 2.0V – 3.3V
Mechanical	Operating Temperature	Operating Standard: 0 – 60° C (32 – 140° F)
	Storage Temperature	Storage: 0 – 60° C (32 – 140° F)
	Humidity	Operating: 40°C@95% relative humidity, non-condensing Storage: 60°C@95% relative humidity, non-condensing
Mechanical	Vibration Resistance	3.5 Grms
	Dimensions	95 x 95 mm (3.74" x 3.74")

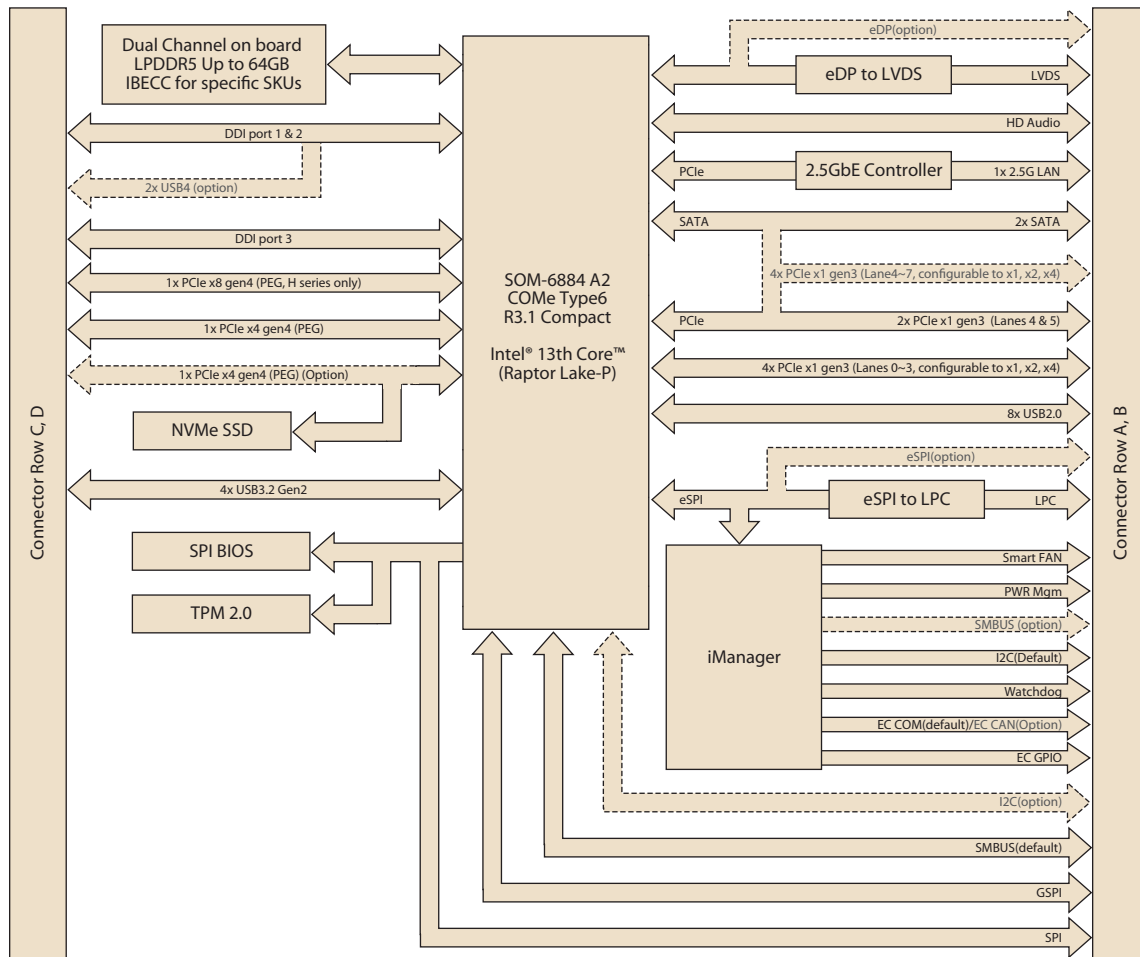
Block Diagram

Block Diagram for A1



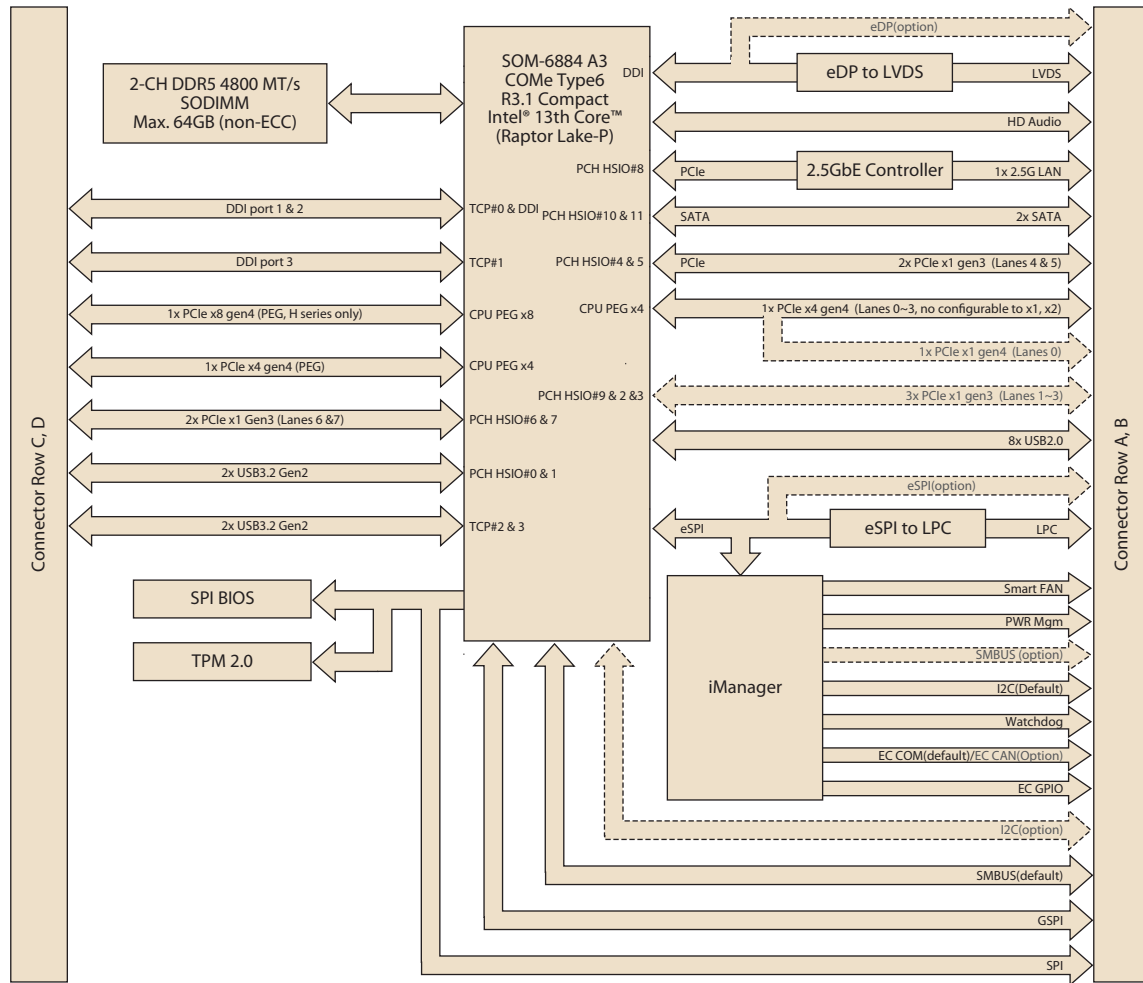
Block Diagram

Block Diagram for A2



Block Diagram

Block Diagram for A3



Ordering Information

Part No.	CPU	Cores (P+E)	Default TDP	P-core Base/Turbo Freq.	E-core Base/Turbo Freq.	Onboard NVMe	PEG x8 GEN4	IBECC	USB4	Thermal Solution	Operating Temperature
SOM-6884C7H-U5A1	Core™ i7-13800HE	14C (6+8)	45W	2.5GHz/5.0GHz	1.8GHz/4.0GHz	64GB	YES	N/A	N/A	Active	0-60°C
SOM-6884C5H-U7A1	Core™ i5-13600HE	12C (4+8)	45W	2.7GHz/4.8GHz	1.9GHz/3.6GHz	N/A	YES	N/A	N/A	Active	0-60°C
SOM-6884C3H-U1A1	Core™ i3-13300HE	8C (4+4)	45W	2.1GHz/4.6GHz	1.5GHz/3.4GHz	N/A	YES	N/A	N/A	Active	0-60°C
SOM-6884C3HA-U1A1	Core™ i3-13300HE	8C (4+4)	45W	2.1GHz/4.6GHz	1.5GHz/3.4GHz	N/A	YES	N/A	Option*	Active	0-60°C
SOM-6884C7HX-U5A1	Core™ i7-13800HRE	14C (6+8)	45W	2.5GHz/5.0GHz	1.8GHz/4.0GHz	64GB	YES	Yes	N/A	Active	-40-85°C
SOM-6884C7U-S7A1	Core™ i7-1365UE	10C (2+8)	15W	1.7GHz/4.9GHz	1.2GHz/3.7GHz	N/A	N/A	N/A	N/A	Active	0-60°C
SOM-6884C5U-S4A1	Core™ i5-1345UE	10C (2+8)	15W	1.4GHz/4.6GHz	1.1GHz/3.4GHz	N/A	N/A	N/A	N/A	Active	0-60°C
SOM-6884C3U-S2A1	Core™ i3-1315UE	6C (2+4)	15W	1.2GHz/4.5GHz	0.9GHz/3.3GHz	N/A	N/A	N/A	N/A	Active	0-60°C
SOM-6884C7UX-S7A1	Core™ i7-1365URE	10C (2+8)	15W	1.7GHz/4.9GHz	1.2GHz/3.7GHz	NA	NA	YES	NA	Active	-40-85°C
SOM-6884C3PX-S7A1	Core™ i3-1320PRE	8C (4+4)	28W	1.7GHz/4.5GHz	1.2GHz/3.3GHz	NA	NA	YES	NA	Active	-40-85°C

Part No.	CPU	Cores (P+E)	Default TDP	P-core Base/Turbo Freq.	E-core Base/Turbo Freq.	Onboard NVMe	Onboard RAM	PEG x8 GEN4	IBECC	USB4	Thermal Solution	Operating Temperature
SOM-6884C7HXA-U5A2	Core™ i7-13800HRE	14C (6+8)	45W	2.5GHz/5.0GHz	1.8GHz/4.0GHz	1TB	64GB	YES	YES	NA	Active	-40-85°C
SOM-6884C7UXA-S7A2	Core™ i7-1365URE	10C (2+8)	15W	1.7GHz/4.9GHz	1.2GHz/3.7GHz	1TB	64GB	NA	YES	NA	Active	-40-85°C
SOM-6884C7UXB-S7A2	Core™ i7-1365URE	10C (2+8)	15W	1.7GHz/4.9GHz	1.2GHz/3.7GHz	512GB	32GB	NA	YES	NA	Active	-40-85°C
SOM-6884C5UA-S4A2	Core™ i5-1345URE	10C (2+8)	15W	1.4GHz/4.6GHz	1.1GHz/3.4GHz	NA	16GB	NA	YES	YES	Active	0-60°C

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

Part No	CPU	Core (P+E)	Default TDP	P-core Base/Turbo Freq.	E-core Base/Turbo Freq.	Onboard NVMe	PEG x8 GEN4	IBECC	USB4	Thermal Solution	Operating Temperature
SOM-6884U3U-S1A3**	Intel U300E	5C (1P+4E)	15W	1.10 GHz / 4.30 GHz	800 MHz / 3.20 GHz	N/A	N/A	N/A	N/A	Active	0-60°C

**This SKU is made in China

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
1970004870T001	Semi-Cooler 95 x 95 x 33 mm with 12V Fan
1970005709T001	QFCS 95 x 95 x 29.3 mm
SOM-MZ20-00A1	SOM-MZ20 USB4 card

Packing List

Part No.	Description	Quantity
-	SOM-6884 CPU Module	1
1970005711T000	Heatspreader of SOM-6884	1

Embedded OS

OS	Part No.	Description
Win10 (HL)	20706WX1HS0044	img W10 21HL SOM-6884 64b 21H2 ENU
Win10 (VL)	20706WX1VS0044	img W10 21VL SOM-6884 64b 21H2 ENU
Win10 (EL)	20706WX1ES0044	img W10 21EL SOM-6884 64b 21H2 ENU
Ubuntu 22.04	20706U22DS0018	img UbuntuD SOM-6884 64b 22.04 ENU
Win10 (HL)	20706WX1VS0103	img W10 21VL SOM-6884A2 64b 21H2 ENU
Win10 (VL)	20706WX1VS0103	img W10 21VL SOM-6884A2 64b 21H2 ENU
Win10 (EL)	20706WX1ES0103	img W10 21EL SOM-6884A2 64b 21H2 ENU