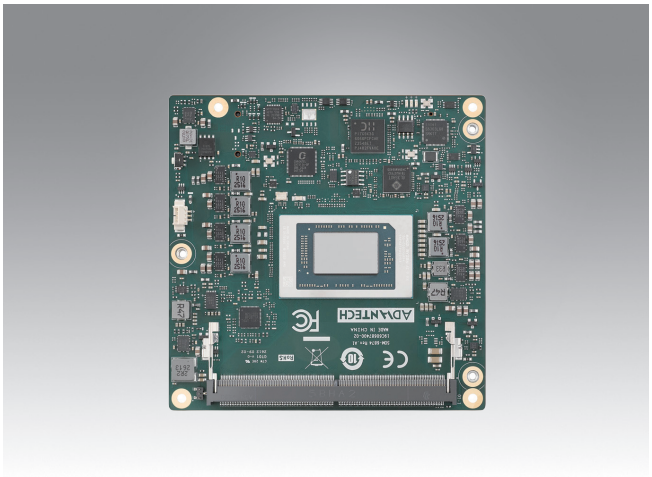
SOM-6874

AMD Ryzen™ AI Embedded P100
COM Express® Compact Type 6



Features

- COM Express® R3.1 Compact Module Type 6 Pinout
- AMD Ryzen™ AI Embedded P100, Hi-Performance Zen4 CPU up to 12C / 24T
- AMD RadeonTM RDNA3.5 Graphics, 4 independent 4K displays
- AMD XDNA2 NPU up to 50 TOPS, Overall up to 80 TOPS
- Dual Channels DDR5 SO-DIMM Sockets, Up to 96GB RAM
- High Speed I/Os: 2.5GbE, PCIe Gen 4, USB 3.2 Gen2
- Supporting Embedded Software APIs and WISE-PaaS/DeviceOn

Software APIs: Watchdog, I²C, SMBus, H/W Monitor, GPIO, Brightness

Windows SUSI API DeviceOn CE FC

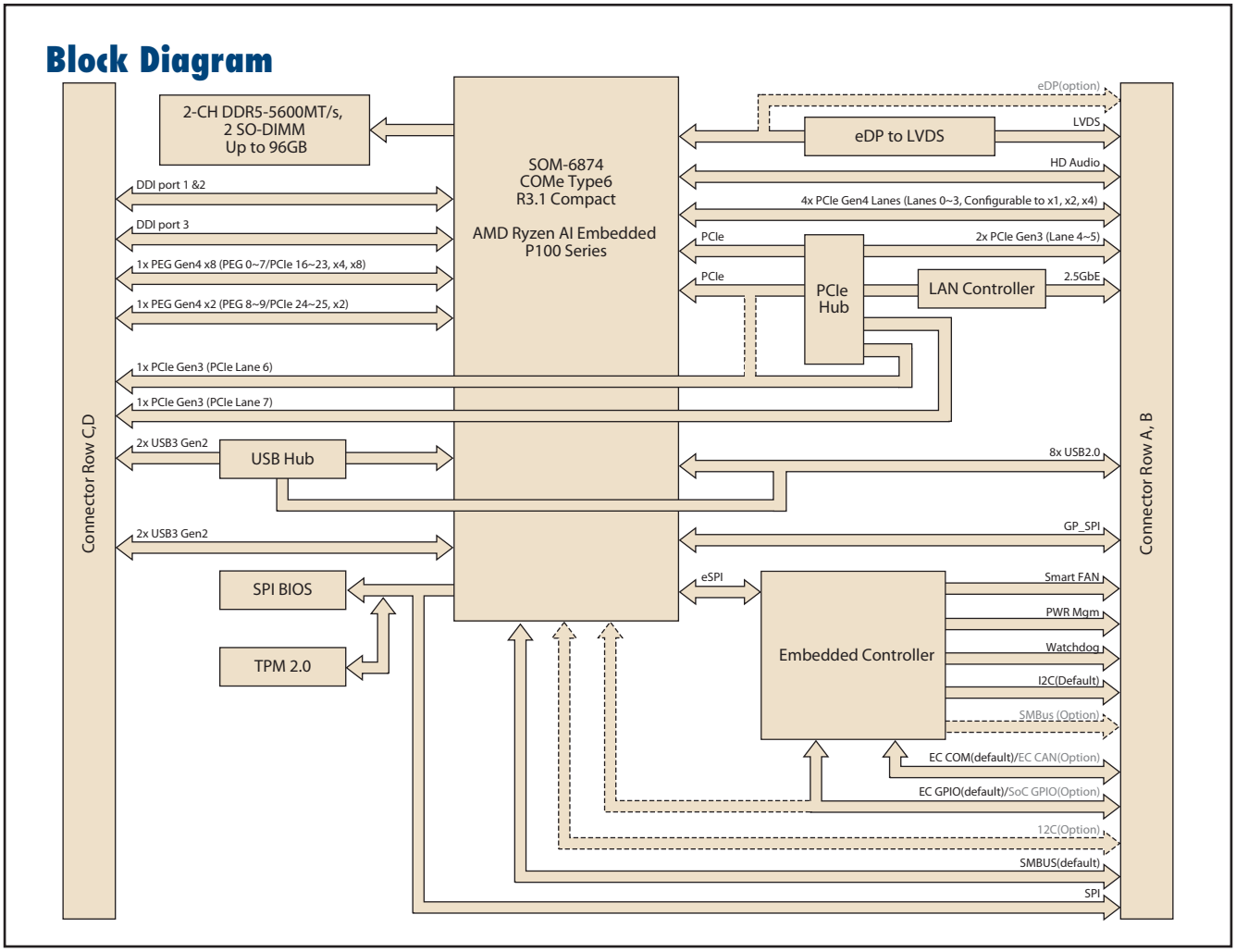
Specifications

Form Factor	Form Factor	COM Express Compact Module		
	Pin-out Type	COM Express R3.1 Type 6 compatible		
Processors	CPU	P185/P185i	P174/P174i	P164/P164i
	Cores (Classic+Dense)/Thread	12C(4+8)/24T	10C(4+6)/20T	8C(3+5)/16T
	Base Frequency	2.0GHz	2.0GHz	2.0GHz
	Max Frequency (Standard) Classic/Dense	5.1GHz/3.3GHz	5GHz/3.3GHz	5GHz/3.3GHz
	Max. Frequency (Extended) Classic/Dense	TBD	TBD	TBD
	LLC	24MB	24MB	16MB
	TDP	28W (15-54W)	28W (15-54W)	28W (15-54W)
	BIOS	AMI UEFI 256Mbit		
Integrated GPU	Controller	AMD Radeon RDNA3.5 Graphics		
	WGP# (CUs)	8 (16)	6 (12)	6 (12)
	Max. Frequency	2.9GHz	2.8GHz	2.8GHz
	FP16 iGPU TFLOPS	23.8 TFLOPS	17.9	17.9
Integrated NPU	Controller	AMD XDNA2 NPU		
	NPU TOPs	50 TOPS	50 TOPS	50 TOPS
Memory	Technology	DDR5		
	Speed	5600 MT/s		
	Max. Capacity	Up to 96GB (48GB/SODIMM)		
	ECC Support	ECC support		
	Channel/Socket	Dual Channels, 1 SO-DIMM socket/Channel (1 on the top side and 1 on the bottom side)		
Display	LVDS/eDP	eDP1.4b HBR3		
	DDI (HDMI/DisplayPort)	3 DDI ports support configurable HDMI/DisplayPort -HDMI 2.1: 4096 x 2304 @ 60Hz -DisplayPort 1.4a HBR3: 4096x2304 60Hz 36bpp; 5120x3200 60Hz 24bpp		
	Multiple Display	Quad Simultaneous Independent Displays		
Ethernet	Gigabit	Intel I226 controller; Speed: 10M/100M/1000M/2.5Gbps		
I/O Interfaces	PEG	10x PCIe Gen4 Lanes, Bifurcate to x8, x4, x2		
	PCI Express	PCIe Gen4, up to 4 lanes and up to 3 end devices, Bifurcate to x4, x2, x1 PCIe Gen3, up to 4 lanes and up to 4 end devices, Bifurcate to x2, x1		
	USB3.2 (Gen2)	4 Ports (10 Gbps)		
	USB 2.0	8 Ports (480 Mbps)		
	GPIO	8-bit, Default from EC, Option from CPU		
	Audio Interface	HD Audio		
	Watchdog	65536 level, 0 ~ 65535 sec		
	COM Port	2 Ports (2-Wire)		
	Smart Fan	Yes		
Serial Bus	SMBus	Yes, Default from SoC and option from EC		
	I2C Bus	Yes, Default from EC and option from SoC		
	CAN Bus	Yes, Support one CAN Bus option from EC		
	SPI Bus	Yes		
Security	Trusted Platform Module (TPM)	TPM2.0		
Power	Type	ATX: Vin, VSB; AT: Vin		
	Supply Voltage	Vin: 4.75V ~ 20V; 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℃@95% relative humidity, non-condensing Storage: 60℃@95%relative humidity, non-condensing		
	Vibration Resistance	3.5 Grms,IEC 60068-2-64, random, 5 ~ 500 Hz, 1 hr/axis		
Mechanical	Dimensions	95 x 95 mm (3.74" x 3.74")		

All product specifications are subject to change without notice.

Last updated: 23-Nov-2026

Block Diagram



Ordering Information

Part No.	CPU	Cores/Thread	Base Freq.	Max Turbo Freq.	L3C Cache	GPU WGP# (CUs)	GPU Freq.	NPU TOPS	TDP	Thermal Solution	Operating Temp.
SOM-6874R12-U0A1	AMD P185	12C/24T	2.0GHz	5.1GHz	24MB	8 (16)	2.9GHz	50	28W (15-54W)	Active	0~60°C
SOM-6874R10-U0A1	AMD P174	10C/20T	2.0GHz	5.0GHz	24MB	6 (12)	2.8GHz	50	28W (15-54W)	Active	0~60°C
SOM-6874R8-U0A1	AMD P164	8C/16T	2.0GHz	5.0GHz	16MB	6 (12)	2.8GHz	50	28W (15-54W)	Active	0~60°C
SOM-6874R12X-U0A1	AMD P185i	12C/24T	2.0GHz	5.1GHz	24MB	8 (16)	2.9GHz	50	28W (15-54W)	Active	-40~85°C

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

Packing List

Part No.	Description	Quantity
-	SOM-6874 COM module	1
1970006130T001	Heatspreader for the SOM-6874	1

Memory AVL List

Vendor	Part No.	Speed	Capacity
TBD			

Optional Accessories

Part No.	Description
1970004870T001	Semi-Cooler 95x95x33 mm (for TDP 28W)
1970006556N001	QFCS Cooler 95x95x34.75mm (for TDP 54W)

Embedded OS

OS	Part No.	Description
Win11	TBD	TBD
Ubuntu	TBD	TBD