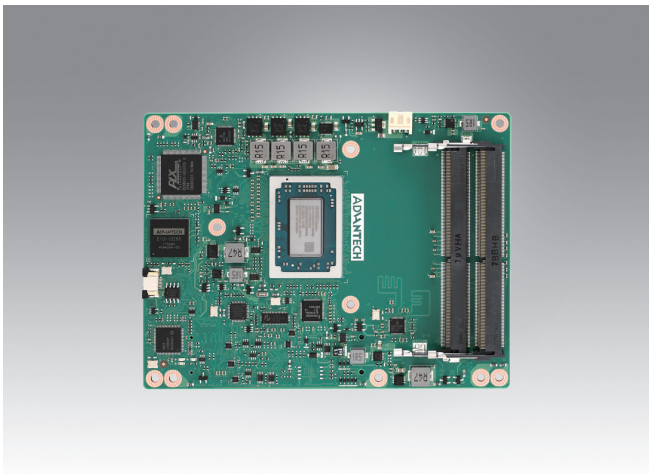
SOM-5871

AMD Ryzen Embedded V1000
COM Express Basic Module Type 6



Features

- Dual channel DDR4, Max 32GB (both ECC & non-ECC)
- Supports quad independent symmetrical displays (4 x 4K displays)
- Multiple I/O interfaces - 1 x PEG PCIex8, 6 x PCIe lanes, 2 x SATA, 2 x USB 3.1 Gen2, 1 x USB 3.1 Gen1, 8 x USB 2.0, 2 x COM, TPM
- Supports iManager, WISE-PaaS/DeviceOn and embedded software APIs

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

Windows Embedded **WISE-DeviceOn iManager** CE FC

Specifications

Form Factor	Form Factor	COM Express Basic Module				
	Pin-Out Type	COM Express R3.0 Type 6 pin out				
Processor System	CPU	V1807B	V1756B	V1605B	V1202B	V1404I
	Base Frequency	3.35GHz	3.25GHz	2.0GHz	2.3GHz	2.0GHz
	1T Boost Frequency	3.8GHz	3.6GHz	3.6GHz	3.2GHz	3.6GHz
	Core/Thread	4/8	4/8	4/8	2/4	4/8
	LLC	2M	2M	2M	1M	2M
	Default TDP	45W	45W	15W	15W	15W
	TDP Range	35-54W	35-54W	12-25W	12-25W	12-25W
Memory	Technology	DDR4 3200	DDR4 3200	DDR4 2400	DDR4 2400	DDR4 2400
	ECC Support	Yes				
	Max. Capacity	32GB				
	Socket	2 260P SODIMM (dual channel)				
Graphics	Controller	Vega GPU with up to 11 compute units				
	GPU Frequency	1.3GHz	1.3GHz	1.1GHz	1.0GHz	1.1GHz
	3D/HW Acceleration	H.265 decode & encode, VP9 decode DirectX® 12/EGL 1.4/OpenCL™ 2.1/OpenGL® ES 1.1, 2.x, and 3.x OpenGL® Next/OpenGL® 4.6				
Display	VGA	1920 x 1200 @ 60 Hz				
	LCD	Dual channel 18/24-bit LVDS, up to 1920 x 1200 @ 60Hz option support eDP1.4, up to 4096 x 2304 @ 60Hz, 24bpp				
	DDI	2 ports configurable to HDMI1.4/DVI/DisplayPort1.4 (option support 3 ports when VGA is removed) HDMI up to 4096 x 2160 @ 30Hz, DVI up to 1920 x 1200 @ 60Hz, DisplayPort up to 3840 x 2160 @ 60Hz				
	Multiple Display	Quad display with different display combinations				
Expansion	PCI Express x8	1 x PEG x8				
	PCI Express	6 x PCIe lanes				
	LPC	Yes				
Serial Bus	SMBus	Yes (default from SoC; option from EC)				
	I²C Bus	Yes (default from EC; option from SoC)				
	CAN Bus	Optional, co-layout with COM2				
Ethernet	Controller	Intel I210 AT				
	Speed	10/100/1000 Mbps				
I/O	SATA 3.0	2 x SATAIII 6Gb/s				
	USB 3.0	3 x ports (2 USB 3.1 Gen2, 1 USB 3.1 Gen1)				
	USB 2.0	8 x ports				
	Audio Interface (*For COMe)	HD audio interface				
	SPI Bus	Yes				
	GPIO	8-bit				
	Watchdog	65536 level, 0~65535 sec				
	COM Port	2 x ports (2-wire)				
	TPM	TPM2.0				
	Smart Fan	2 x ports: 1 port on COM module (Notice: the input voltage of fan is aligned to Vin); 1 port on carrier board				
Power	Type	ATX: Vin, VSB; AT: Vin				
	Supply Voltage	Vin: 8.5V ~ 20V; VSB: 4.75V ~ 5.25 V, RTC Battery: 2.0V ~ 3.3V				
Environment	Operating Temperature	Standard: 0 ~ 60 °C (32 ~ 140 °F) Extended: -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	125 x 95 mm (4.92" x 3.74")				

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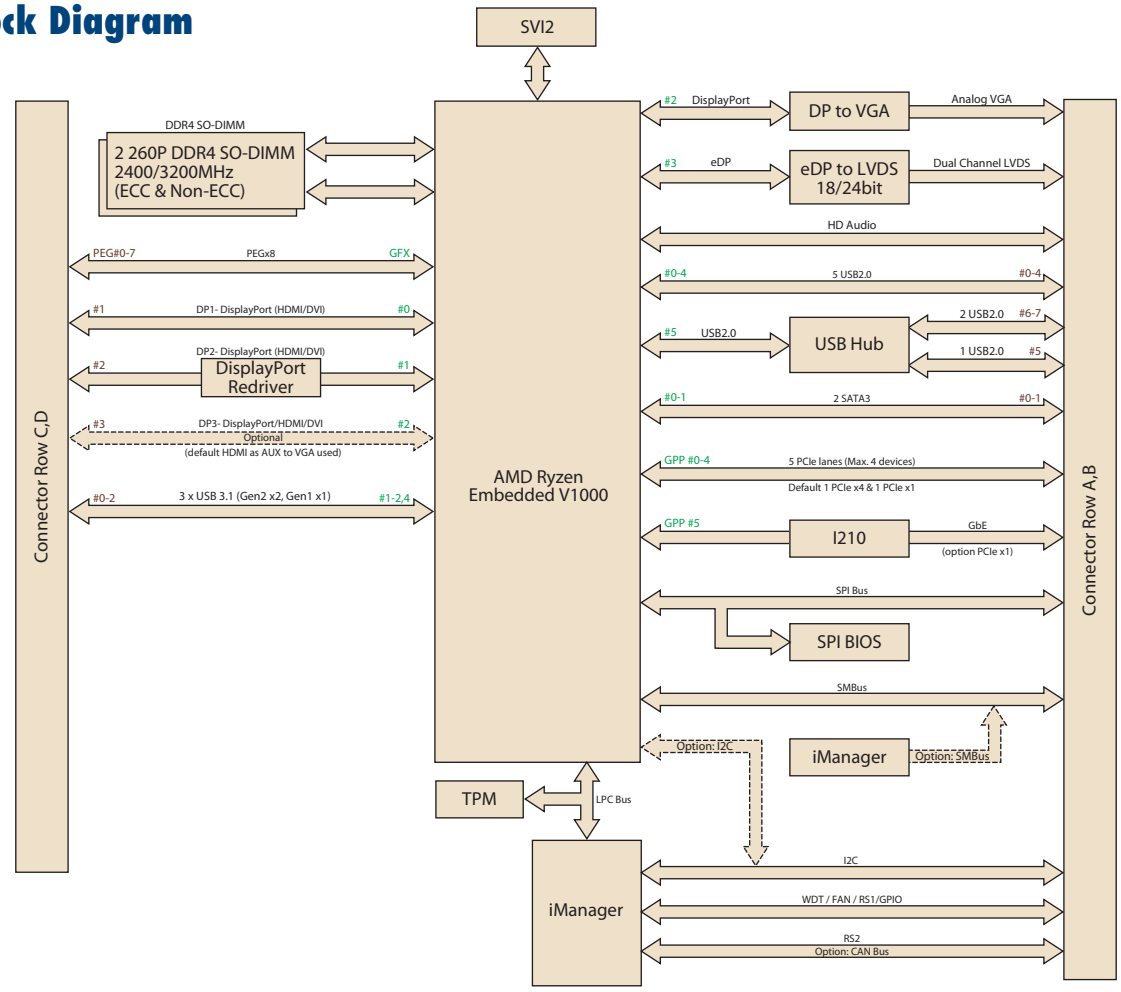
All product specifications are subject to change without notice.

Block Diagram



Ordering Information

Part No.	SoC	Base/1T Boost Freq.	Core/Thread	LLC	Default TDP	TDP Range	Thermal Solution	Operating Temperature
SOM-5871VC-H3A1	V1807B	3.35GHz/3.8GHz	4/8	2M	45W	35-54W	Active	0 ~ 60 °C
SOM-5871VC-H2A1	V1756B	3.25GHz/3.6GHz	4/8	2M	45W	35-54W	Active	0 ~ 60 °C
SOM-5871VC-U0A1	V1605B	2.0GHz/3.6GHz	4/8	2M	15W	12-25W	Active	0 ~ 60 °C
SOM-5871VC-U3A1	V1202B	2.3GHz/3.2GHz	2/4	1M	15W	12-25W	Active	0 ~ 60 °C
SOM-5871VCX-U1A1	V1404I	2.0GHz /3.6GHz	4/8	2M	15 W	12-25W	Active	-40 ~ 85 °C

Note: Passive = fanless; Active = with fan

Packing List

Part No.	Description	Quantity
-	SOM-5871 CPU module	1
1960088919N001	Heatspreader (0 ~ 60 °C)	1
1960092074T001	Heatspreader (-40 ~ 85 °C)	1

Development Board

Part No.	Description
SOM-DB5830-00A1	COMe R3.0 Devel. Board Type 6 Rev. A1

Optional Accessories

Part No.	Description
1960048820N001	Semi-cooler 125 x 95 x 33.5 mm with 12V fan

Embedded OS

OS	Part Number	Description
Win10	20706WX6HS0007	img W10 16HL SOM-5871 64b 1709 ENU