

INDUSTRIAL GRADE 8-CORE INTEL ATOM®

conga-SA8

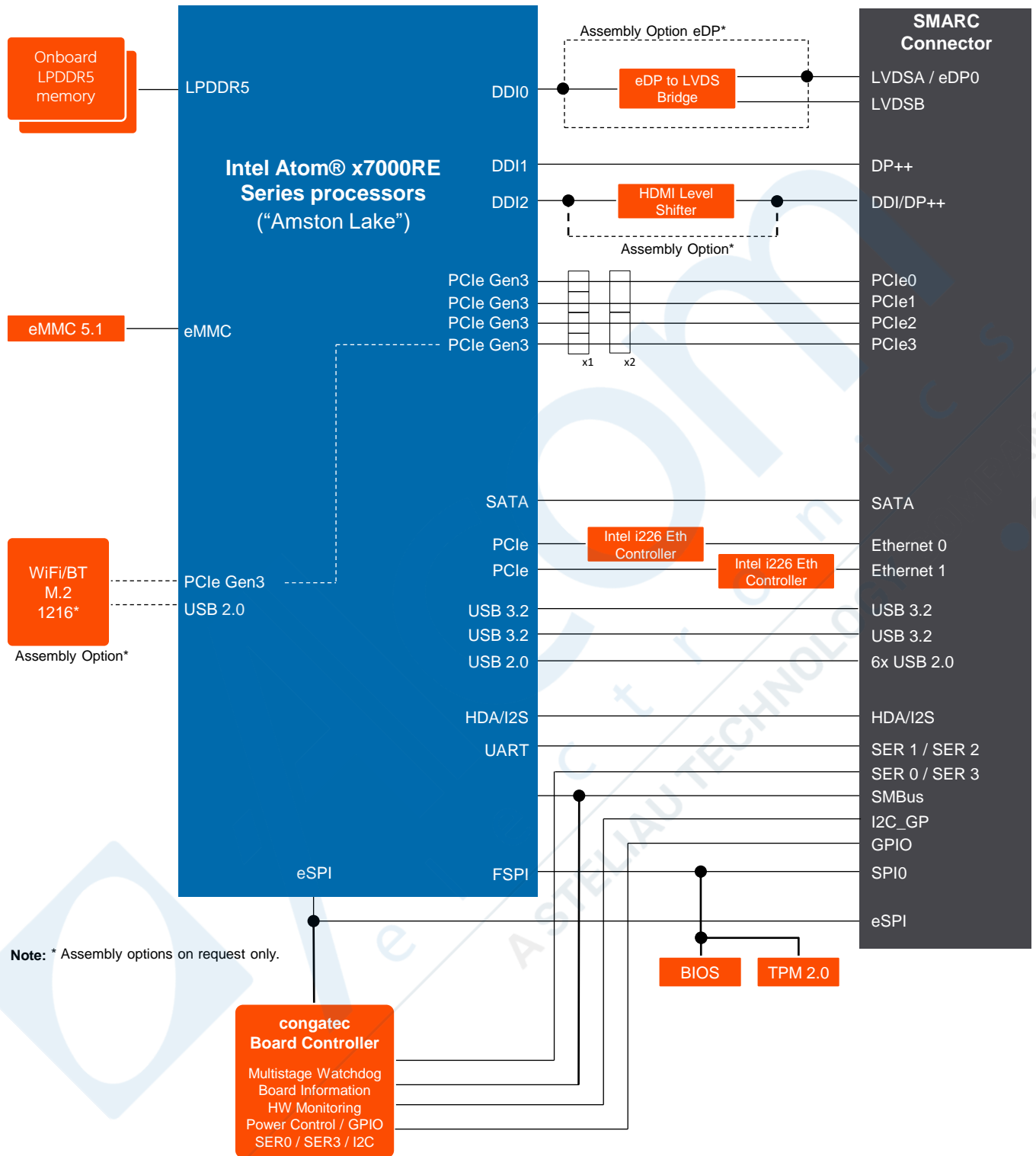


VIRTUALIZATION READY

- Increase in parallelism and performance
- AI Acceleration (VNNI)
- Intel Gen 12 UHD Graphics with up to 32EU's
- LPDDR5 with up to 4.800 MT/s memory support
- Extended temperature options available

Form Factor	SMARC Specification 2.1					
CPU	Processor	Cores / Threads	Base Frequency / max. Turbo	TDP	Gfx EUs	Intel Use Condition
	Core3-N355	8C / 8T	1.0/1.9GHz / 3.9GHz	9/15W	32EU	PC Client
	i3-N305	8C / 8T	1.0/1.8GHz / 3.8GHz	9/15W	32EU	PC Client
	x7425E	4C / 4T	1.5GHz / 3.4GHz	12W	24EU	Embedded
	x7433RE	4C / 4T	1.5GHz / 3.4GHz*	9W	32EU	Industrial*
	x7835RE	8C / 8T	1.3GHz / 3.6GHz*	12W	32EU	Industrial*
						*turbo off
DRAM	max. 16GB onboard LPDDR5 up to 4.800 MT/s In-Band ECC					
Ethernet	2x 2.5 GbE via Intel® i226 Ethernet controller series Supporting TSN - Time Sensitive Networking (selected PNs) 2 Software Definable Pins (SDPs) to be used for IEEE 1588					
I/O Interfaces	2x USB 3.2 Gen2 6x USB 2.0 SATA Gen 3.2 up to 4x PCIe Gen3 3x I ² C Bus SPI eSPI 4x UART 12x GPIO 1x I2C GP 1x SMBus 2x I2C CSI Intel® Wi-Fi 6E AX210, BT 5.3 (optional)					
Mass Storage	eMMC 5.1 onboard flash up to 256 GB (optional configured as pSLC mode)					
Audio	1x I2S 1x HDA multiplexed with I2S on edge connector					
Graphics	Integrated Intel Gen 12 UHD Graphics with up to 32EU's					
LVDS	Dual channel LVDS transmitter (support for flat panels with 2x24 bit data mapping up to a resolution of 1920x1200 @60Hz) shared with eDP (option)					
Digital Display Interface	HDMI 2.0b: 4Kx2K @ 60Hz eDP 1.4b: 4096x2304 @ 60Hz HBR3 DP 1.4: 4096x2304 @ 60Hz Up to 3 independent displays					
congatec Board controller	Multistage watchdog non-volatile user data storage manufacturing and board Information board statistics fast mode and multi-master I ² C bus power loss control					
Embedded BIOS Feature	AMI Aptio® UEFI firmware 32 Mbyte serial SPI with congatec Embedded BIOS feature OEM Logo OEM CMOS Defaults LCD Control Display Auto Detection Backlight Control Flash Update					
Security	TPM 2.0 Intel®Platform Trust Technology Intel®Boot Guard Intel® OS Guard					
Power Management	ACPI 5.0 compliant Smart Battery Management					
Operating Systems	Microsoft® Windows 11 Microsoft® Windows 11 IoT Enterprise Microsoft® Windows 10 Microsoft® Windows 10 IoT Enterprise Linux					
Hypervisor	RTS Real-Time Hypervisor					
Power Consumption	See manual for full details					
Temperature Range	Commercial:	Operating Temperature: 0 to +60°C	Storage Temperature: -20 to +80°C			
	Industrial:	Operating Temperature: -40 to +85°C	Storage Temperature: -40 to +85°C			
Humidity	Operating:	10 to 85% r. H. non cond.				
	Storage:	5 to 85% r. H. non cond.				
Size	82 x 50 mm					

conga-SA8 | Block Diagram



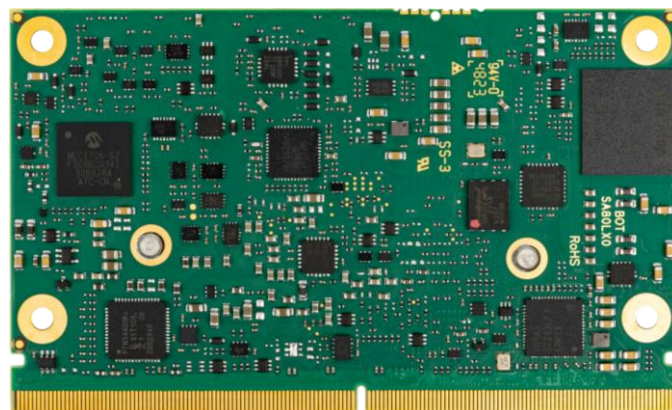
conga-SA8 | Order Information (1/2)

Article	PN	Description
conga-SA8/i-x7835RE-16G-eMMC64	051410	SMARC 2.1 module with Intel Atom® x7835RE 8-core processor with 1.3GHz core frequency up to 3.6GHz (turbo), 16GB 4800MT/s LPDDR5 onboard memory and 64GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7835RE-8G-eMMC32	051411	SMARC 2.1 module with Intel Atom® x7835RE 8-core processor with 1.3GHz core frequency up to 3.6GHz (turbo), 8GB 4800MT/s LPDDR5 onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7433RE-8G-eMMC32	051412	SMARC 2.1 module with Intel Atom® x7433RE 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), 8GB 4800MT/s LPDDR5 onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7433RE-4G-eMMC32	051413	SMARC 2.1 module with Intel Atom® x7433RE 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), 4GB 4800MT/s LPDDR5 onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i3-N305-16G-eMMC64	051414	SMARC 2.1 module with Intel Core™ i3-N305 8-core processor with 1.8GHz core frequency up to 3.8GHz (turbo), 16GB 4800MT/s LPDDR5 onboard memory and 64GB eMMC 5.1 onboard flash. Commercial grade temperature range from 0°C to 60°C.
conga-SA8/x7425E-8G-eMMC32	051415	SMARC 2.1 module with Intel Atom® x7425E 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), 8GB 4800MT/s LPDDR5 onboard memory and 32GB eMMC 5.1 onboard flash. Commercial grade temperature range from 0°C to 60°C.
conga-SA8/core3-N355-16G-eMMC64	051416	SMARC 2.1 module with Intel Core™ 3 N355 8-core processor with 1.9GHz core frequency up to 3.9GHz (turbo), 16GB 4800MT/s LPDDR5 onboard memory and 64GB eMMC 5.1 onboard flash. Commercial grade temperature range from 0°C to 60°C.
conga-SA8/i-x7835RE-8G-eMMC32 AX210	051420	SMARC 2.1 module with Intel Atom® x7835RE 8-core processor with 1.3GHz core frequency up to 3.6GHz (turbo), 8GB 4800MT/s LPDDR5 onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C. Intel AX210 Wifi6E/BT.

conga-SA8 top view



conga-SA8 bottom view



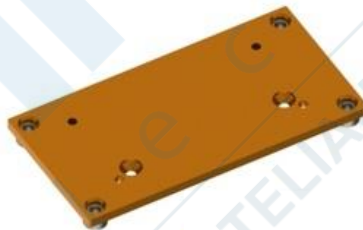
conga-SA8 | Order Information (2/2)

Article	PN	Description
conga-SA8/CSP-B	051450	Passive cooling solution for SMARC 2.1 module conga-SA8.
conga-SA8/HSP-B	051451	Standard heatspreader for SMARC 2.1 module conga-SA8.
SMARC/CSA Adapter	050060	Active cooling solution adapter for SMARC 2.1 modules used in combination with module heat spreader.
conga-SEVAL	007010	Evaluation Carrier Board compatible with SMARC modules
conga-SMC1/SMARC-x86	020751	Compact sized 3.5" Carrier Board for x86 based SMARC 2.1 modules

conga-SA8/CSP-B



conga-SA8/HSP-B



SMARC/CSA Adapter



conga-SEVAL



conga-SMC1/SMARC-x86



© 2025 congatec GmbH.
All rights reserved.

All data is for information purposes only. Although all the information contained within this document is carefully checked, no guarantee of correctness is implied or expressed. Product names, logos, brands, and other trademarks featured or referred are the property of their respective trademark holders. These trademark holders are not affiliated with congatec GmbH. Product not yet released for Mass Production.
Preliminary Revision 1.9 – January 07th, 2025