

# INDUSTRIAL GRADE 8-CORE INTEL ATOM®

## conga-SA8



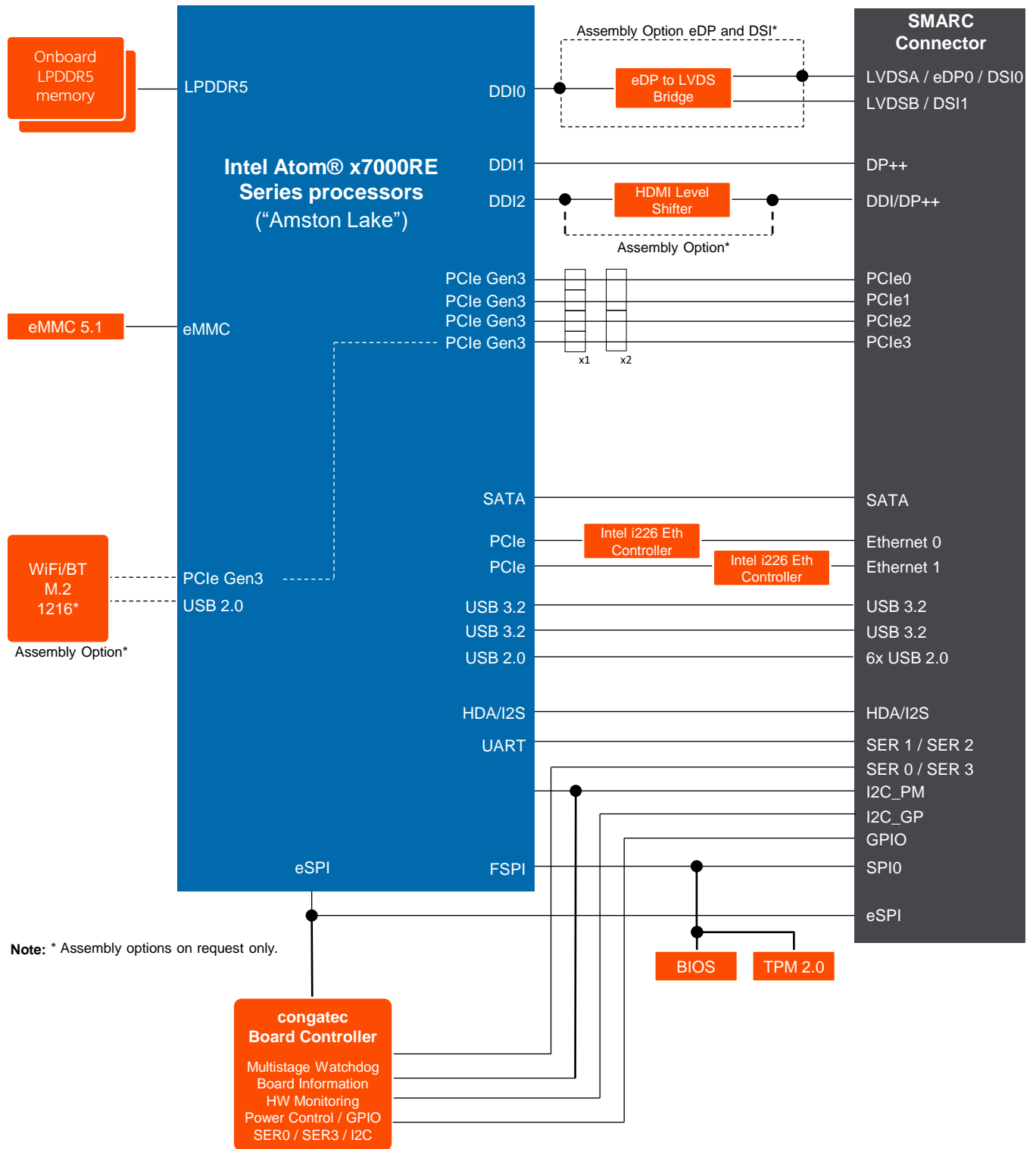
**VIRTUALIZATION READY**

- 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

<b>Form Factor</b>	SMARC Specification 2.1					
<b>CPU</b>	<b>Processor</b>	<b>Cores / Threads</b>	<b>Base Frequency / max. Turbo</b>	<b>TDP</b>	<b>Gfx EUs</b>	<b>Intel Use Condition</b>
	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
<b>DRAM</b>	max. 16GB onboard LPDDR5   up to 4.800 MT/s					
<b>Ethernet</b>	2x 2.5 GbE with TSN support via Intel® i226 Ethernet controller series   Supporting Time Sensitive Networking (TSN)   2 Software Definable Pins (SDPs) to be used for IEEE 1588					
<b>I/O Interfaces</b>	2x USB 3.2 Gen2   6x USB 2.0   SATA Gen 3.2   up to 4x PCIe Gen3   3x I <sup>2</sup> 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)					
<b>Mass Storage</b>	eMMC 5.1 onboard flash up to 256 GB (optional configured as pSLC mode)					
<b>Audio</b>	1x I2S   1x HDA multiplexed with I2S on edge connector					
<b>Graphics</b>	Integrated Intel Gen 12 UHD Graphics with up to 32EU's					
<b>LVDS</b>	Dual channel LVDS transmitter (support for flat panels with 2x24 bit data mapping up to a resolution of 1920x1200 @60Hz)   shared with eDP (option) or MIPI-DSI 1.3 x4 (option)					
<b>Digital Display Interface</b>	HDMI 2.0b: 4Kx2K @ 60Hz eDP 1.4b: 4096x2304 @ 60Hz HBR3 DP 1.4: 4096x2304 @ 60Hz 3 independent display pipes, up to 3x4Kp60 resolution					
<b>congatec Board controller</b>	Multistage watchdog   non-volatile user data storage   manufacturing and board Information   board statistics   fast mode and multi-master I <sup>2</sup> C bus   power loss control					
<b>Embedded BIOS Feature</b>	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					
<b>Security</b>	TPM 2.0   Intel®Platform Trust Technology   Intel®Boot Guard   Intel® OS Guard					
<b>Power Management</b>	ACPI 5.0 compliant   Smart Battery Management					
<b>Operating Systems</b>	Microsoft® Windows 11   Microsoft® Windows 11 IoT Enterprise   Microsoft® Windows 10   Microsoft® Windows 10 IoT Enterprise   Linux					
<b>Hypervisor</b>	RTS Real-Time Hypervisor					
<b>Power Consumption</b>	See manual for full details					
<b>Temperature Range</b>	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		
<b>Humidity</b>	Operating:	10 to 90% r. H. non cond.				
	Storage:	5 to 95% r. H. non cond.				
<b>Size</b>	82 x 50 mm					



# conga-SA8 | Block Diagram



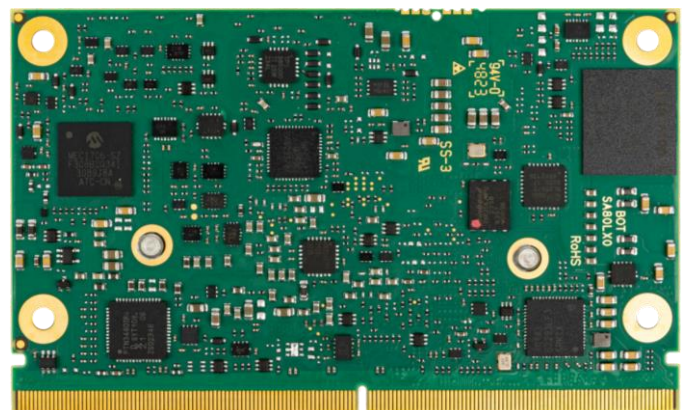
# conga-SA8 | Order Information (1/2)

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.
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.
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



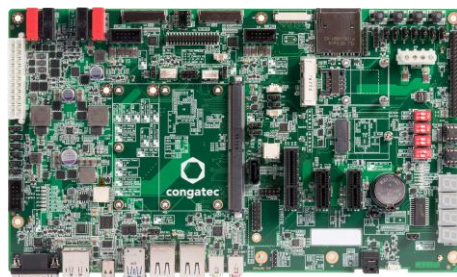
conga-SA8/HSP-B



SMARC/CSA Adapter



conga-SEVAL



conga-SMC1/SMARC-x86

