

# INDUSTRIAL GRADE 8-CORE INTEL ATOM®

## conga-SA8



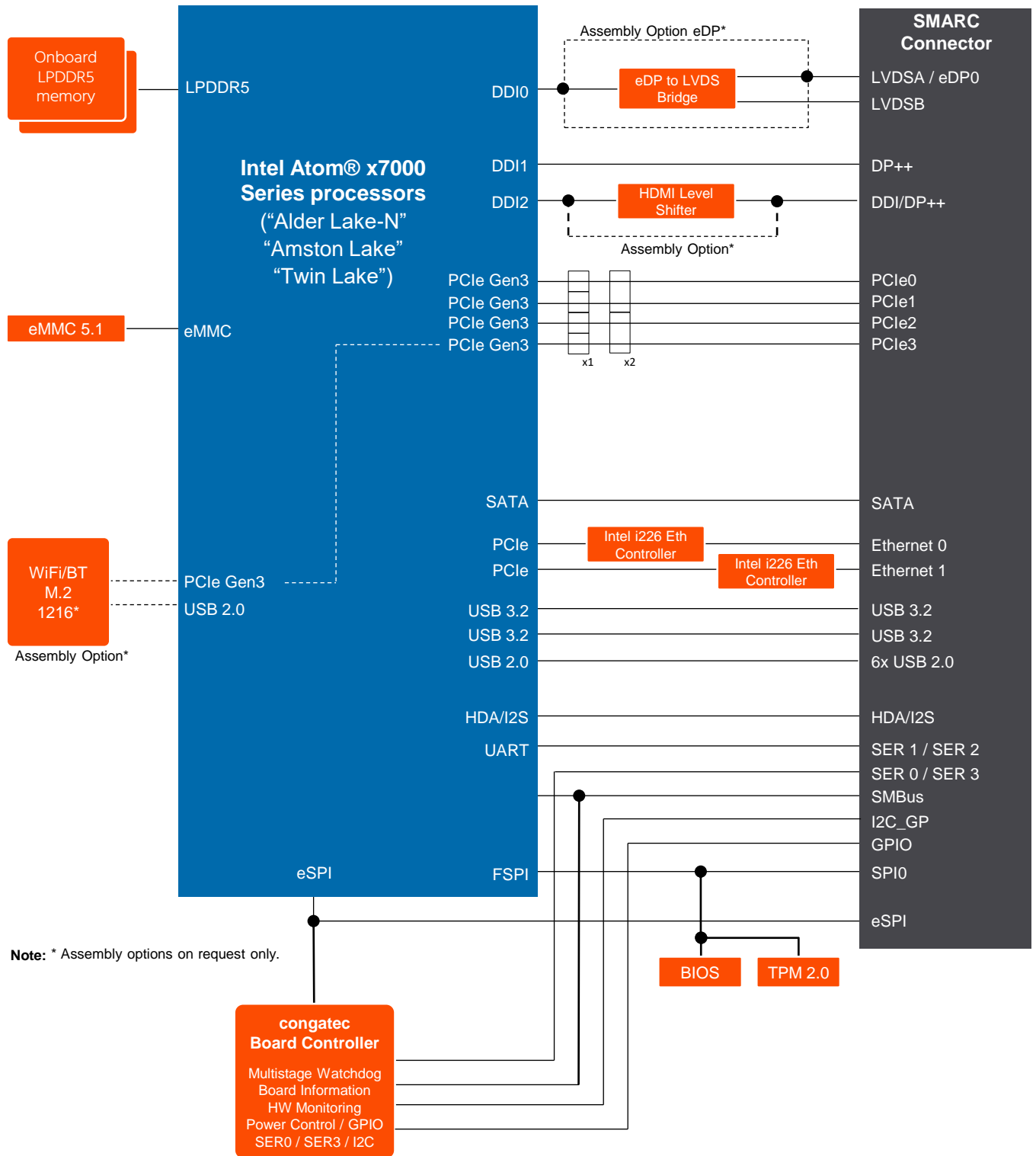
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- Increase in parallelism and performance
- AI Acceleration (VNNI)
- Intel Gen 12 UHD Graphics with up to 32EU's
- LPDDR5 with up to 4.800 MT/s memory support
- Extended temperature options available

<b>Form Factor</b>	SMARC Specification 2.2					
<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>
	Core3-N355	8C / 8T	1.0/1.9GHz / 3.9GHz	9/15W	32EU	PC Client / Embedded*
	x7835RE	8C / 8T	1.3GHz / 3.6GHz**	12W	32EU	Industrial**
	x7433RE	4C / 4T	1.5GHz / 3.4GHz**	9W	32EU	Industrial**
	x7211RE	2C / 2T	1.0GHz / 3.2GHz**	6W	16EU	Industrial**
	x7425E	4C / 4T	1.5GHz / 3.4GHz	12W	24EU	Embedded
	*Apply Intel PTR **Industrial Use Condition only without turbo					
<b>DRAM</b>	Up to 16GB onboard LPDDR5   up to 4.800 MT/s   In-Band ECC					
<b>Ethernet</b>	2x 2.5 GbE via Intel® i226 Ethernet controller series   TSN - Time Sensitive Networking (only on selected PNs)   2 Software Definable Pins (SDPs) to be used for IEEE 1588					
<b>I/O Interfaces</b>	2x USB 3.2 Gen 2   6x USB 2.0   SATA Gen 3.2   up to 4x PCIe Gen3   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 64GB (optional up to 256GB)					
<b>Audio</b>	1x HDA					
<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)					
<b>Digital Display Interface</b>	HDMI 2.0b: 4Kx2K @ 60Hz eDP 1.4b: 4096x2304 @ 60Hz HBR3 DP 1.4: 4096x2304 @ 60Hz Up to 3 independent displays					
<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 85% r. H. non cond.				
	Storage:	5 to 85% r. H. non cond.				
<b>Size</b>	82 x 50 mm					



# conga-SA8 | Block Diagram



**Note:** \* Assembly options on request only.

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

Article	PN	Description
conga-SA8/i-x7835RE-16G-eMMC64	051410	SMARC 2.2 module with Intel Atom® <b>x7835RE</b> 8-core processor with 1.3GHz core frequency up to 3.6GHz (turbo), <b>16GB</b> 4800MT/s LPDDR5 onboard memory and <b>64GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7835RE-8G-eMMC32	051411	SMARC 2.2 module with Intel Atom® <b>x7835RE</b> 8-core processor with 1.3GHz core frequency up to 3.6GHz (turbo), <b>8GB</b> 4800MT/s LPDDR5 onboard memory and <b>32GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7433RE-16G-eMMC64	051418	SMARC 2.2 module with Intel Atom® <b>x7433RE</b> 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), <b>16GB</b> 4800MT/s LPDDR5 onboard memory and <b>64GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7433RE-8G-eMMC32	051412	SMARC 2.2 module with Intel Atom® <b>x7433RE</b> 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), <b>8GB</b> 4800MT/s LPDDR5 onboard memory and <b>32GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7433RE-4G-eMMC32	051413	SMARC 2.2 module with Intel Atom® <b>x7433RE</b> 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), <b>4GB</b> 4800MT/s LPDDR5 onboard memory and <b>32GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/i-x7211RE-4G-eMMC32	051417	SMARC 2.2 module with Intel Atom® <b>x7211RE</b> 2-core processor with 1.0GHz core frequency up to 3.2GHz (turbo), <b>4GB</b> 4800MT/s LPDDR5 onboard memory and <b>32GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C.
conga-SA8/x7425E-16G-eMMC64	051419	SMARC 2.2 module with Intel Atom® <b>x7425E</b> 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), <b>16GB</b> 4800MT/s LPDDR5 onboard memory and <b>64GB</b> eMMC 5.1 onboard flash. Commercial grade temperature range from 0°C to 60°C.
conga-SA8/x7425E-8G-eMMC32	051415	SMARC 2.2 module with Intel Atom® <b>x7425E</b> 4-core processor with 1.5GHz core frequency up to 3.4GHz (turbo), <b>8GB</b> 4800MT/s LPDDR5 onboard memory and <b>32GB</b> eMMC 5.1 onboard flash. Commercial grade temperature range from 0°C to 60°C.
conga-SA8/core3-N355-16G-eMMC64	051416	SMARC 2.2 module with Intel <b>Core™ 3 N355</b> 8-core processor with 1.9GHz core frequency up to 3.9GHz (turbo), <b>16GB</b> 4800MT/s LPDDR5 onboard memory and <b>64GB</b> eMMC 5.1 onboard flash. Commercial grade temperature range from 0°C to 60°C.
conga-SA8/i-x7835RE-8G-eMMC32 AX210	051420	SMARC 2.2 module with Intel Atom® <b>x7835RE</b> 8-core processor with 1.3GHz core frequency up to 3.6GHz (turbo), <b>8GB</b> 4800MT/s LPDDR5 onboard memory and <b>32GB</b> eMMC 5.1 onboard flash. Supports TSN. Industrial grade temperature range from -40°C to 85°C. Intel AX210 <b>Wifi6E</b> .

# 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.
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 top view



conga-SA8 bottom view



conga-SA8/CSP-B



conga-SA8/HSP-B



conga-SEVAL



conga-SMC1/SMARC-x86

