

# EMBEDDED SMARC 2.1



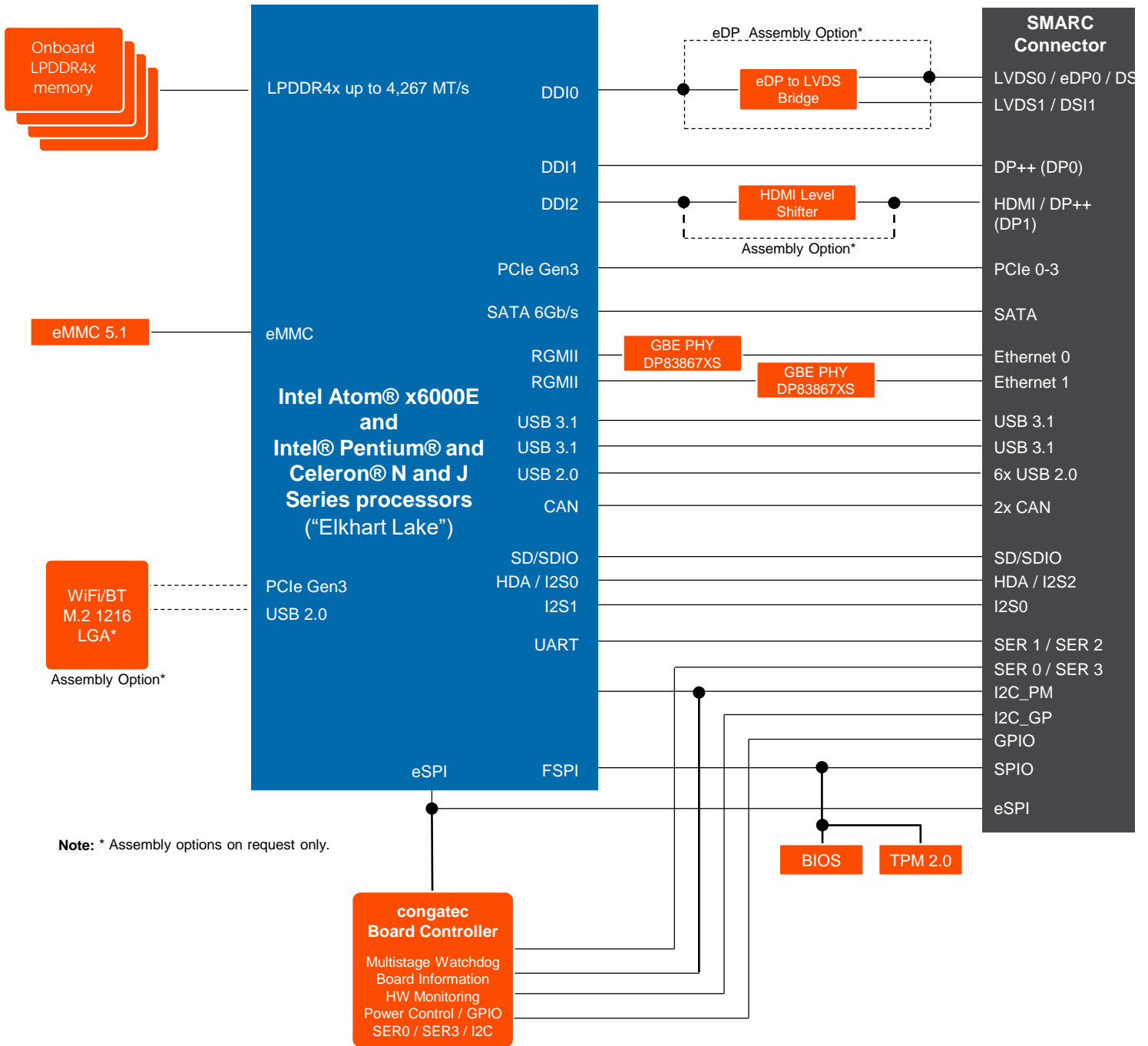
## conga-SA7



- SMARC 2.1 module based on Intel® Atom® x6000E Series and Intel® Pentium® and Celeron® J Series processors (code-named Elkhart Lake)
- High performance Intel® UHD Graphics (Gen11)
- Options for Industrial Temperature Range -40°C to 85°C
- Time Sensitive Networking and Time Coordinated Computing for improved Realtime Capability
- Up to 4.267 MT/s Memory Support with Inband ECC

Form Factor	SMARC Specification 2.1   82x50 mm					
<b>CPU</b>	Processor	TDP	Cores/Threads	Base Frequency/max. Turbo	Gfx Gen.11	Intel Use Condition
	J6413	10W	4 / 4	1.8 GHz / 3.0 GHz	16 EU	PC Client
	J6425	10W	4 / 4	1.8 GHz / 3.0 GHz	32 EU	PC Client
	x6211E	6W	2 / 2	1.2 GHz / 3.0 GHz	16 EU	Embedded
	x6413E	9W	4 / 4	1.5 GHz / 3.0 GHz	16 EU	Embedded
	x6425E	12W	4 / 4	1.8 GHz / 3.0 GHz	32 EU	Embedded
	x6212RE	6W	2 / 2	1.2 GHz / ---	16 EU	Industrial
	x6414RE	9W	4 / 4	1.5 GHz / ---	16 EU	Industrial
x6425RE	12W	4 / 4	1.9 GHz / ---	32 EU	Industrial	
<b>DRAM</b>	max. 16GB onboard LPDDR4x   up to 4.267 MT/s					
<b>Ethernet</b>	2x Intel® GbE with TSN support and Out-Of-Band Management   2x real-time trigger					
<b>I/O Interfaces</b>	2x USB 3.1 Gen2 (1x OTG)   6x USB 2.0 (1x OTG)   1x SATA III   1x SDIO   up to 4x PCIe Gen3   2x I <sup>2</sup> C Bus   1x SPI   1x eSPI   4x UART   GPIO   2x CAN   1x I2S   onboard M.2 1216 WiFi/BT module (optional)					
<b>Mass Storage</b>	eMMC 5.1 onboard flash up to 64GB (optional up to 128GB)					
<b>Sound</b>	Intel® LPE Audio via I2S					
<b>Graphics</b>	Intel® UHD Graphics (Gen11)					
<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 or 1x MIPI-DSI x4 (option)					
<b>Digital Display Interface</b>	DisplayPort 1.2 up to 4096x2160px and HDMI 1.4b up to 3840x2160px					
<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>Power Management</b>	ACPI 5.0 compliant   Smart Battery Management					
<b>Operating Systems</b>	Microsoft® Windows 10   Microsoft® Windows 10 IoT Enterprise   Microsoft® Windows IoT 10 Core   Linux   Android   Yocto   RTS Hypervisor					
<b>Power Consumption</b>	tbd.   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 (approx. 3,23" x 1,97")					

# conga-SA7 | Block Diagram



# conga-SA7 | Order Information

Article	PN	Description
conga-SA7/x6425E-16G eMMC64	050100	SMARC 2.1 module with Intel® Atom® x6425E quad core processor with 1.8GHz core frequency up to 3.0GHz, 1.5MB cache, 16GB 3200MT/s LPDDR4x onboard memory and 64GB eMMC 5.1 onboard flash.
conga-SA7/x6413E-8G eMMC32	050101	SMARC 2.1 module with Intel® Atom® x6413E quad core processor with 1.5GHz core frequency up to 3.0GHz, 1.5MB cache, 8GB 4267MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash.
conga-SA7/x6211E-8G eMMC32	050102	SMARC 2.1 module with Intel® Atom® x6211E dual core processor with 1.2GHz core frequency up to 3.0GHz, 1.5MB cache, 8GB 4267MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash.
conga-SA7/i-x6425RE-8G eMMC32	050110	SMARC 2.1 module with Intel® Atom® x6425RE quad core processor with 1.9GHz core frequency, 1.5MB cache, 8GB 4267MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA7/i-x6414RE-4G eMMC32	050111	SMARC 2.1 module with Intel® Atom® x6414RE quad core processor with 1.5GHz core frequency, 1.5MB cache, 4GB 4267MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA7/i-x6212RE-4G eMMC32	050112	SMARC 2.1 module with Intel® Atom® x6212RE dual core processor with 1.2GHz core frequency, 1.5MB cache, 4GB 4267MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA7/J6425-16G eMMC64	050120	SMARC 2.1 module with Intel® Pentium® J6425 quad core processor with 1.8GHz core frequency up to 3.0GHz, 1.5MB cache, 16GB 3200MT/s LPDDR4x onboard memory and 64GB eMMC 5.1 onboard flash.
conga-SA7/J6413-8G eMMC32	050121	SMARC 2.1 module with Intel® Celeron® J6413 quad core processor with 1.8GHz core frequency up to 3.0GHz, 1.5MB cache, 8GB 4267 MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash.
conga-SA7/i-CSP-B	050150	Passive cooling solution for SMARC 2.1 module conga-SA7 with lidded Intel Atom x6000E processors. All standoffs are with 2.7mm bore hole.
conga-SA7/i-HSP-B	050151	Standard heatspreader for SMARC 2.1 module conga-SA7 with lidded Intel Atom x6000E processors. All standoffs are with 2.7mm bore hole.
conga-SA7/HSP-B	050152	Standard heatspreader for SMARC 2.1 module conga-SA7 with open-die Intel Pentium and Celeron J and N processors. All standoffs are with 2.7mm bore hole.
conga-SA7/CSP-B	050153	Passive cooling solution for SMARC 2.1 module conga-SA7 with open-die Intel Pentium and Celeron J and N processors. All standoffs are with 2.7mm bore hole.