EMBEDDED SMARC 2.1

conga-SA7

SMARC module

- SMARC 2.1 module based on Intel Atom® x6000E Series and Intel® Pentium® and Celeron® J and N Series processors
- High performance Intel® UHD Graphics for 10th Gen Intel® Processors
- LPDDR4x with up to 4.267 MT/s Memory Support
- Options for M.2 1216 WiFi/BT
- Options for Industrial Temperature Range -40°C to 85°C

Form Factor	SMARC Specification 2.1

CPU

Processor	TDP	Cores / Threads	Base Frequency / max. Turbo	Gfx EUs	Intel Use Condition
J6413	10W	4 / 4	1.8 GHz / 3.0 GHz	16 EU	PC/Client
J6426	10W	4 / 4	2.0 GHz / 3.0 GHz	32 EU	PC/Client
x6211E	6W	2 / 2	1.3 GHz / 3.0 GHz	16 EU	Embedded
x6413E	9W	4 / 4	1.5 GHz / 3.0 GHz	16 EU	Embedded
x6425E	12W	4 / 4	2.0 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

DRAM	max. 16GB (optional up to 32 GB) onboard LPDDR4x | up to 4.267 MT/s
Ethernet	2x GbE with TSN support | 2x real-time trigger
I/O Interfaces	2x USB 3.1 Gen2 | 6x USB 2.0 | SATA III | 1x SDIO | up to 4x PCIe Gen3 | 2x I²C Bus | SPI | eSPI | 4x UART | GPIO | 2x CAN | onboard M.2 1216 WiFI/BT (optional)
Mass Storage	eMMC 5.1 onboard flash up to 64GB (optional up to 128GB)
Audio	Intel® High Definition Audio
Graphics	High performance Intel® UHD Graphics for 10th Gen Intel® Processors
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	2x DDI up to 4096x2160 @60Hz
congatec Board controller	Multistage watchdog | non-volatile user data storage | manufacturing and board Information | board statistics | fast mode and multi-master I²C 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
Power Management	ACPI 5 .0 compliant | Smart Battery Management
Operating Systems	Microsoft® Windows 11 upon request | Microsoft® Windows 11 IoT Enterprise upon request | Microsoft® Windows 10 | Microsoft® Windows 10 IoT Enterprise | Linux | Yocto
Hypervisor	RTS Real-Time Hypervisor
Power Consumption	See manual for full details

Temperature Range

Commercial variants:	Operation 0° to +60°C	Storage -20 to +80°C
Industrial variants:	Operation -40° to +85°C	Storage -40 to +85°C

Humidity

Operation:	10% to 85% r. H. non cond.
Storage:	5% to 85% r. H. non cond.

Size	82 x 50 mm

intel partner Titanium

congatec

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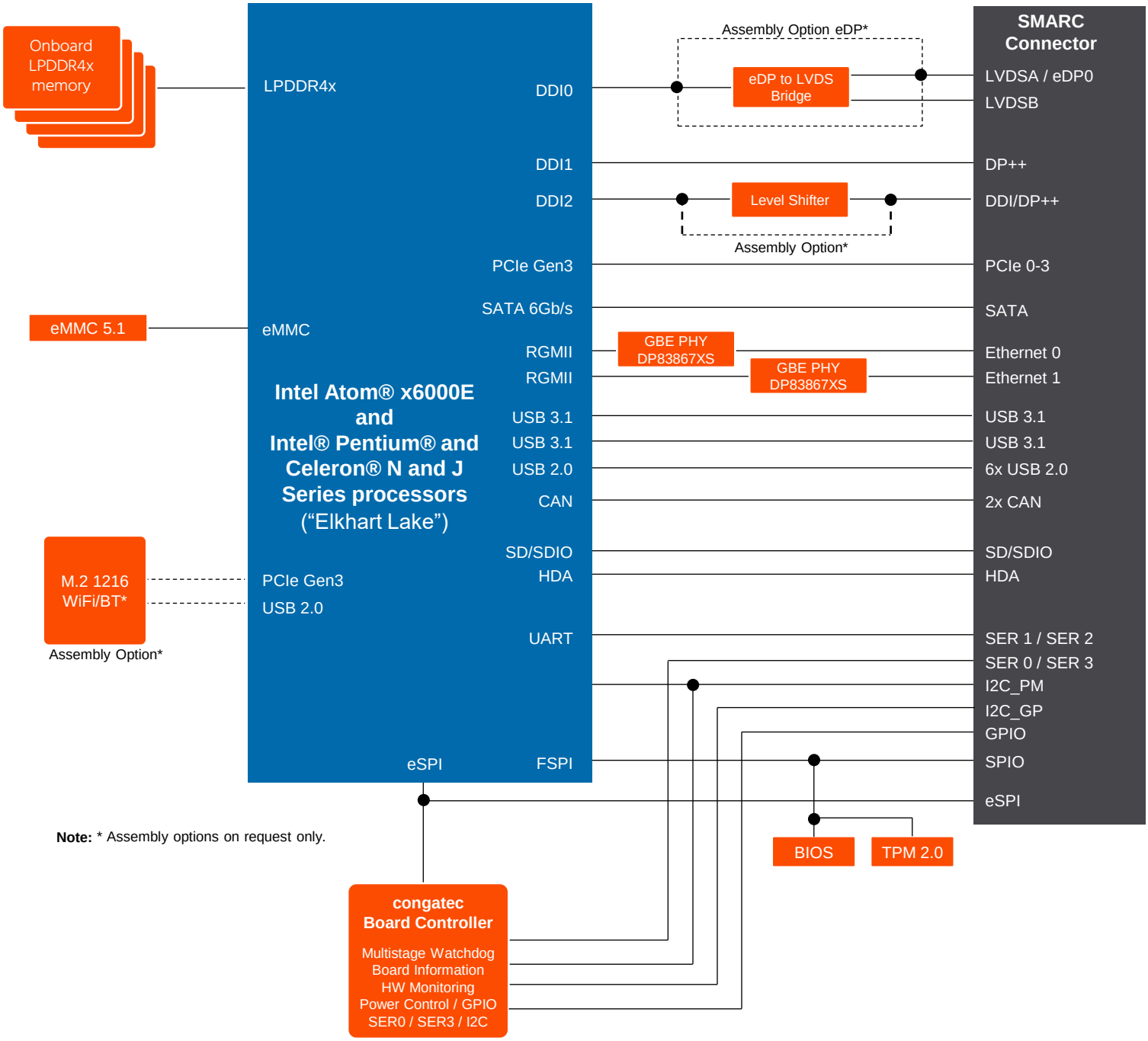
conga-SA7 | Block Diagram



Note: * Assembly options on request only.

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 2.0GHz core frequency up to 3.0GHz, 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, 8GB 3.200MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash.
conga-SA7/x6211E-4G eMMC32	050102	SMARC 2.1 module with Intel Atom® x6211E dual core processor with 1.3GHz core frequency up to 3.0GHz, 4GB 3.200MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash.
conga-SA7/x6425E-8G eMMC32	050103	SMARC 2.1 module with Intel® Atom® x6425E quad core processor with 2.0GHz core frequency up to 3.0GHz, 1.5MB cache, 8GB 3733MT/s LPDDR4x onboard memory and 32GB eMMC onboard flash.
conga-SA7/x6425E-4G eMMC32	050104	SMARC 2.1 module with Intel® Atom® x6425E quad core processor with 2.0GHz core frequency up to 3.0GHz, 1.5MB cache, 4GB 3733MT/s LPDDR4x onboard memory and 32GB eMMC 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, 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, 4GB 3.200MT/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, 4GB 3.200MT/s LPDDR4x onboard memory and 32GB eMMC 5.1 onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA7/i-x6425RE-4G eMMC32	050113	SMARC 2.1 module with Intel® Atom® x6425RE quad core processor with 1.9GHz core frequency, 1.5MB cache, 4GB 3200MT/s LPDDR4x onboard memory and 32GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga-SA7/J6426-16G eMMC64	050120	SMARC 2.1 module with Intel® Pentium® J6426 quad core processor with 2.0GHz core frequency up to 3.0GHz, 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, 8GB 3.733MT/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 processor series. 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 processor series. 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.

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