EMBEDDED SMARC 2.0

conga-SA5



- Low power Intel® Atom™ E3900 Series, Celeron® and Pentium® N-Series processors
- High performance Intel® HD Graphics 500
- Industrial Temperature Range -40°C to 85°C
- Time Coordinated Computing
- Enhanced Security Execution

SMARC module

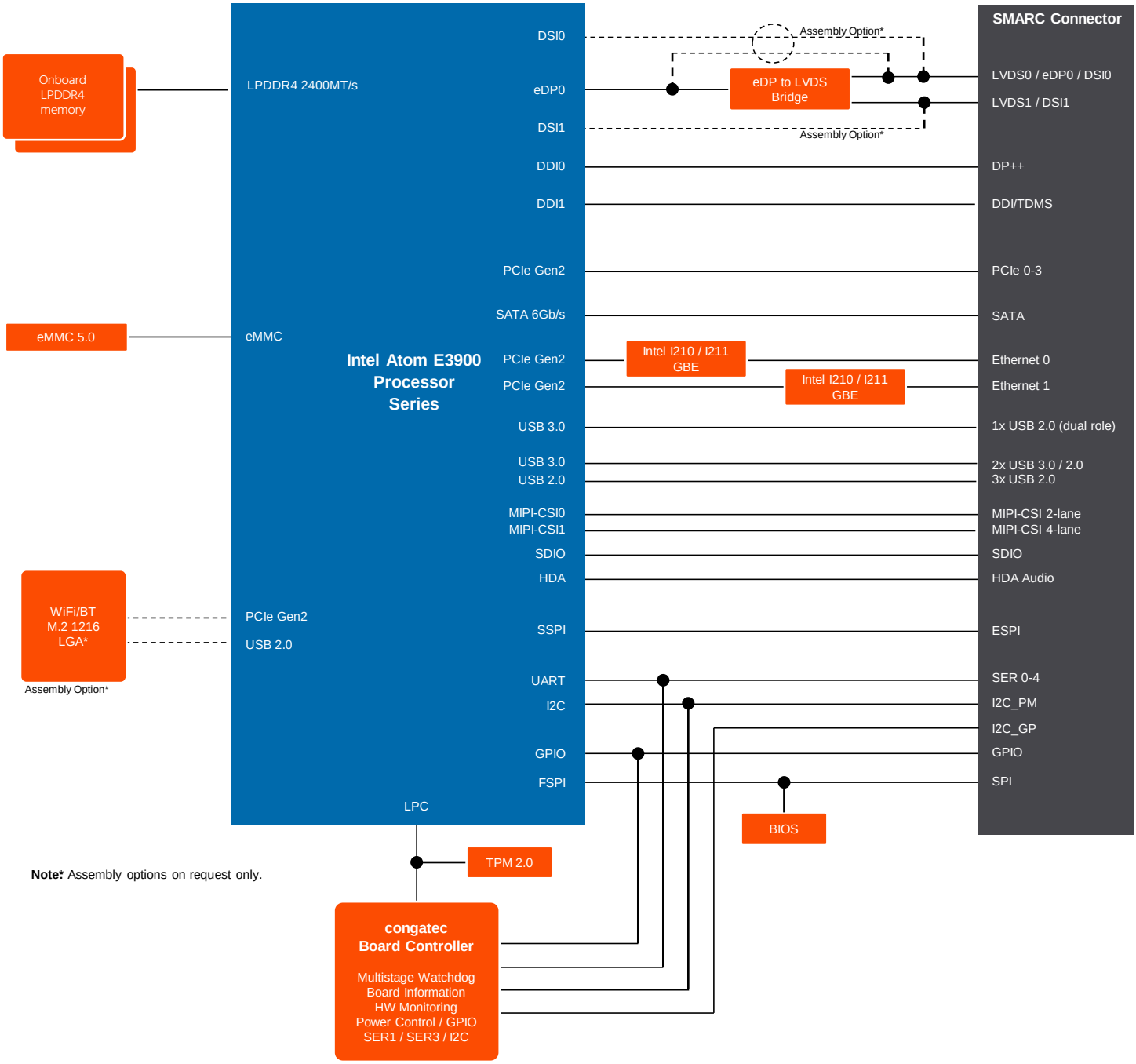
Form Factor	SMARC Specification 2.0 | 82x50 mm				
CPU	Intel® Atom® x7-E3950	2.00 GHz (Burst) | 1.6 GHz Clock	Quad Core	L2 cache 2MB	12W TDP
	Intel® Atom® x5-E3940	1.80 GHz (Burst) | 1.6 GHz Clock	Quad Core	L2 cache 2MB	9W TDP
	Intel® Atom® x5-E3930	1.80 GHz (Burst) | 1.3 GHz Clock	Dual Core	L2 cache 2MB	6.5W TDP
	Intel® Pentium® N4200	2.50 GHz (Burst) | 1.1 GHz Clock	Quad Core	L2 cache 2MB	6W TDP
	Intel® Celeron® N3350	2.40 GHz (Burst) | 1.1 GHz Clock	Dual Core	L2 cache 2MB	6W TDP
	Intel® Celeron® J3455	2.30 GHz (Burst) | 1.5 GHz Clock	Quad Core	L2 cache 2MB	10W TDP
DRAM	up to 8GB onboard LPDDR4 with 2400MT/s				
Ethernet	2x Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller with SDP support | 2x real-time trigger				
I/O Interfaces	2x USB 3.0 | 4x USB 2.0 | 1x SATA3 | 1x SDIO | up to 4x PCIe Gen2 | 2x I²C Bus | 2x SPI I 4x UART | optional onboard M.2 1216 WiFi/BT module				
Mass Storage	eMMC 5.0 onboard flash up to 128 GByte				
Sound	Intel® High Definition Audio | Integrated Audio DSP with Intel® Smart Sound Technology				
Graphics	Intel® HD Graphics 500 with support for 4k Ultra HD displays | DirectX 12 | OpenGL 4.4 | OpenCL 2.0 | OpenGL ES 3.0 | HDCP 1.4 (wired), HDCP 2.0 (wireless) | Video decode hardware acceleration including support for 4kp60 HEVC (H.265), H.264, MVC, VP8, VP9, VC-1, WMV9, JPEG/MJPEG | Video encode hardware acceleration including support for 4kp30 HEVC (H.265), H.264, MVC, VP8, JPEG/MJPEG.				
LVDS	Dual channel LVDS transmitter | support for flat panels with 2x24 bit data mapping up to a resolution of 1920x1200 @60Hz | shared with eDP or 2x MIPI-DSI x4 (option)				
DisplayPort / DDI	DisplayPort 1.2 up to 4096x2160p or DDI/TDMS up to 3840x2160p				
MIPI-CSI	1x MIPI-CSI x4 and 1x MIPI-CSI x2				
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 | 8 MByte serial SPI with congatec Embedded BIOS features 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 10 | Microsoft® Windows 10 IoT Enterprise | Microsoft® Windows IoT 10 Core | Linux | Yocto				
Power Consumption	Typ. application: 8-12W | 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 90% r. H. non cond.				
	Storage: 5 to 95% r. H. non cond.				
Size	82 x 50 mm (3,23" x 1,97")				

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intel partner Titanium

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conga-SA5 | Block Diagram



Note: Assembly options on request only.

conga-SA5 | Order Information

Article	PN	Description
conga-SA5/E3950-8G eMMC32	050000	SMARC 2.0 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 8GB 2400MT/s LPDDR4 onboard memory and 32GB eMMC onboard flash.
conga-SA5/E3940-4G eMMC32	050001	SMARC 2.0 module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz, 2MB L2 cache, 4GB 2133MT/s LPDDR4 onboard memory and 32GB eMMC onboard flash.
conga-SA5/E3930-2G eMMC16	050002	SMARC 2.0 module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz, 2MB L2 cache, 2GB 2133MT/s LPDDR4 onboard memory and 16GB eMMC onboard flash.
conga-SA5/E3930-2G eMMC16 1xGBE	050003	SMARC 2.0 module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz, 2MB L2 cache, 2GB 2133MT/s LPDDR4 onboard memory and 16GB eMMC onboard flash. Only one GBE.
conga-SA5/i-E3950-4G eMMC32	050010	SMARC 2.0 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 4GB 2400MT/s LPDDR4 onboard memory and 32GB eMMC onboard flash. Industrial temperature range -40°C to 85°C.
conga-SA5/i-E3940-4G eMMC16	050011	SMARC 2.0 module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz, 2MB L2 cache, 4GB 2133MT/s LPDDR4 onboard memory and 16GB eMMC onboard flash. Industrial temperature range -40°C to 85°C.
conga-SA5/i-E3930-2G eMMC16	050012	SMARC 2.0 module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz, 2MB L2 cache, 2GB 2133MT/s LPDDR4 onboard memory and 16GB eMMC onboard flash. Industrial temperature range -40°C to 85°C.
conga-SA5/i-E3950-8G eMMC32	050013	SMARC 2.0 module with Intel® Atom™ x7-E3930 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 8GB 2400MT/s LPDDR4 onboard memory and 32GB eMMC onboard flash. Industrial temperature range -40°C to 85°C.
conga-SA5/N3350-4G eMMC32	050022	SMARC 2.0 module with Intel® Celeron™ N3350 dual core processor with 1.1GHz core frequency up to 2.3GHz, 2MB L2 cache, 4GB 2400MT/s LPDDR4 onboard memory and 32GB eMMC onboard flash.
conga-SA5/N4200-8G eMMC32	050023	SMARC 2.0 module with Intel® Pentium® N4200 quad core processor with 1.1GHz core frequency up to 2.50GHz, 2MB L2 cache, 8GB 2400MT/s LPDDR4 onboard memory and 32GB eMMC onboard flash.
conga-SA5/J3455-4G eMMC16	050024	SMARC 2.0 module with Intel® Celeron® J3455 quad core processor with 1.5GHz core frequency up to 2.30GHz, 2MB L2 cache, 4GB 2400MT/s LPDDR4 onboard memory and 16GB eMMC onboard flash.
conga-SA5/E3950-8G eMMC32 SPKL-AC	050031	SMARC 2.0 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 8GB 2400MT/s LPDDR4 onboard memory, 32GB eMMC onboard flash and onboard Sparklan WNSQ-261ACN(BT) Wifi/BT module.
conga-SA5/i-CSP-B	050051	Passive cooling solution for SMARC 2.0 module conga-SA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga-SA5/i-HSP-B	050053	Standard heatspreader for SMARC 2.0 module conga-SA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga-SA5/CSP-B	050055	Passive cooling solution for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
conga-SA5/HSP-B	050057	Standard heatspreader for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.

Accessories		
conga-SEVAL	007010	Evaluation Carrier Board for SMARC 2.0 modules.
conga-SMC1/SMARC-x86	020750	3.5" carrier board for congatec SMARC 2.1 modules based on x86 architecture.

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