

# EMBEDDED SMARC 2.0

## conga-SA5

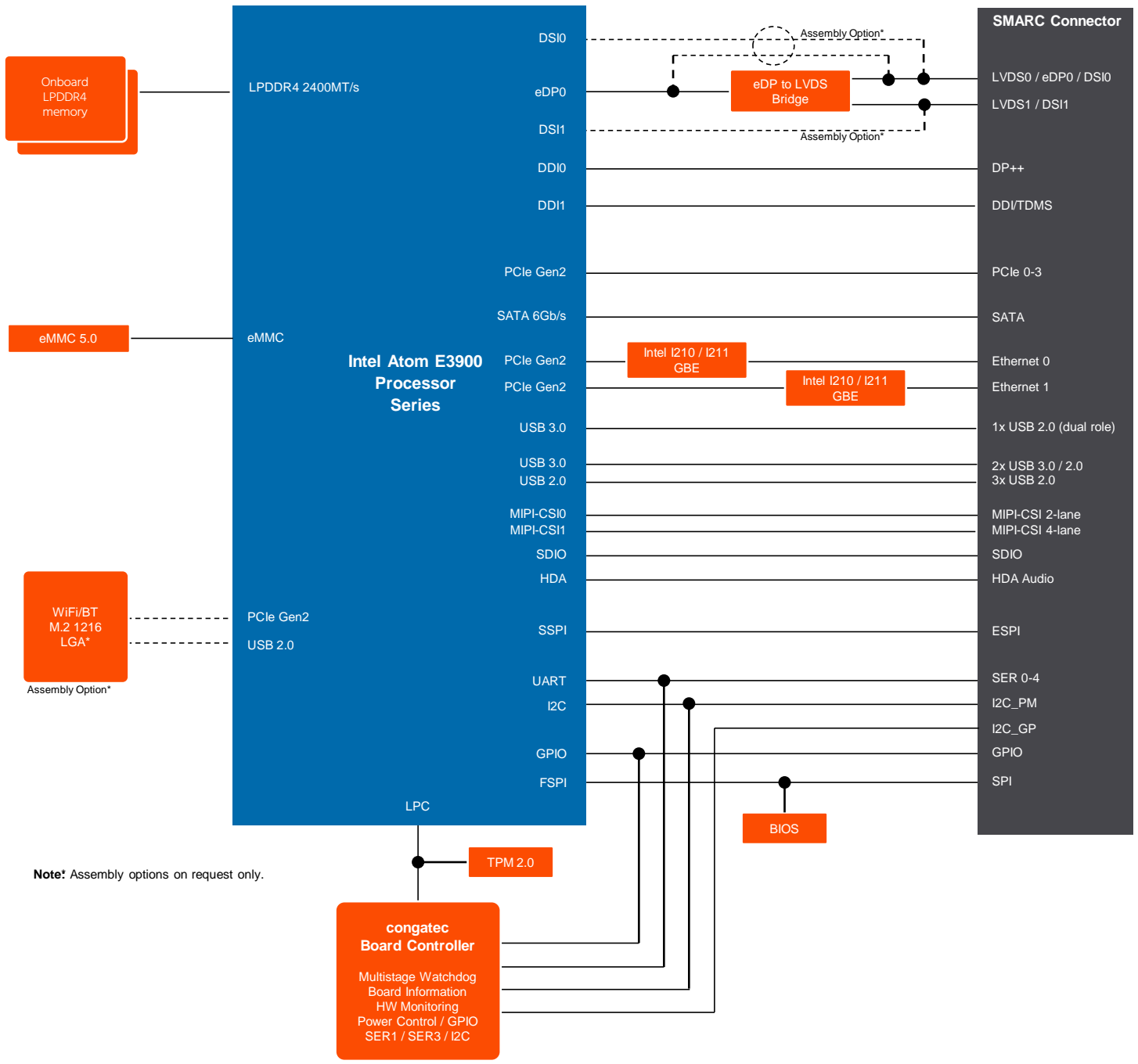


- Low power Intel® Atom™ E3900 Series, Celeron® and Pentium® N-Series processors
- High performance Intel® HD Graphics 500
- Industrial Temperature Range -40°C to 85°C
- Time Coordinated Computing
- Enhanced Security Execution



<b>Form Factor</b>	SMARC Specification 2.0   82x50 mm				
<b>CPU</b>	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
<b>DRAM</b>	up to 8GB onboard LPDDR4 with 2400MT/s				
<b>Ethernet</b>	2x Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller with SDP support   2x real-time trigger				
<b>I/O Interfaces</b>	2x USB 3.0   4x USB 2.0   1x SATA3   1x SDIO   up to 4x PCIe Gen2   2x I <sup>2</sup> C Bus   2x SPI   4x UART   optional onboard M.2 1216 WiFi/BT module				
<b>Mass Storage</b>	eMMC 5.0 onboard flash up to 128 GByte				
<b>Sound</b>	Intel® High Definition Audio   Integrated Audio DSP with Intel® Smart Sound Technology				
<b>Graphics</b>	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.				
<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 2x MIPI-DSI x4 (option)				
<b>DisplayPort / DDI</b>	DisplayPort 1.2 up to 4096x2160p or DDI/TDMS up to 3840x2160p				
<b>MIPI-CSI</b>	1x MIPI-CSI x4 and 1x MIPI-CSI x2				
<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   8 MByte serial SPI with congatec Embedded BIOS features 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   Yocto				
<b>Power Consumption</b>	Typ. application: 8-12W   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 (3,23" x 1,97")				

# 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.
<b>Accessories</b>		
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.