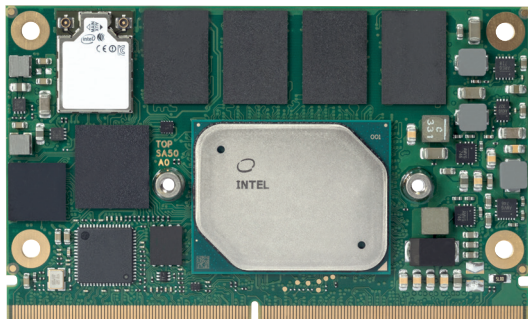


EMBEDDED SMARC 2.0

conga-SA5

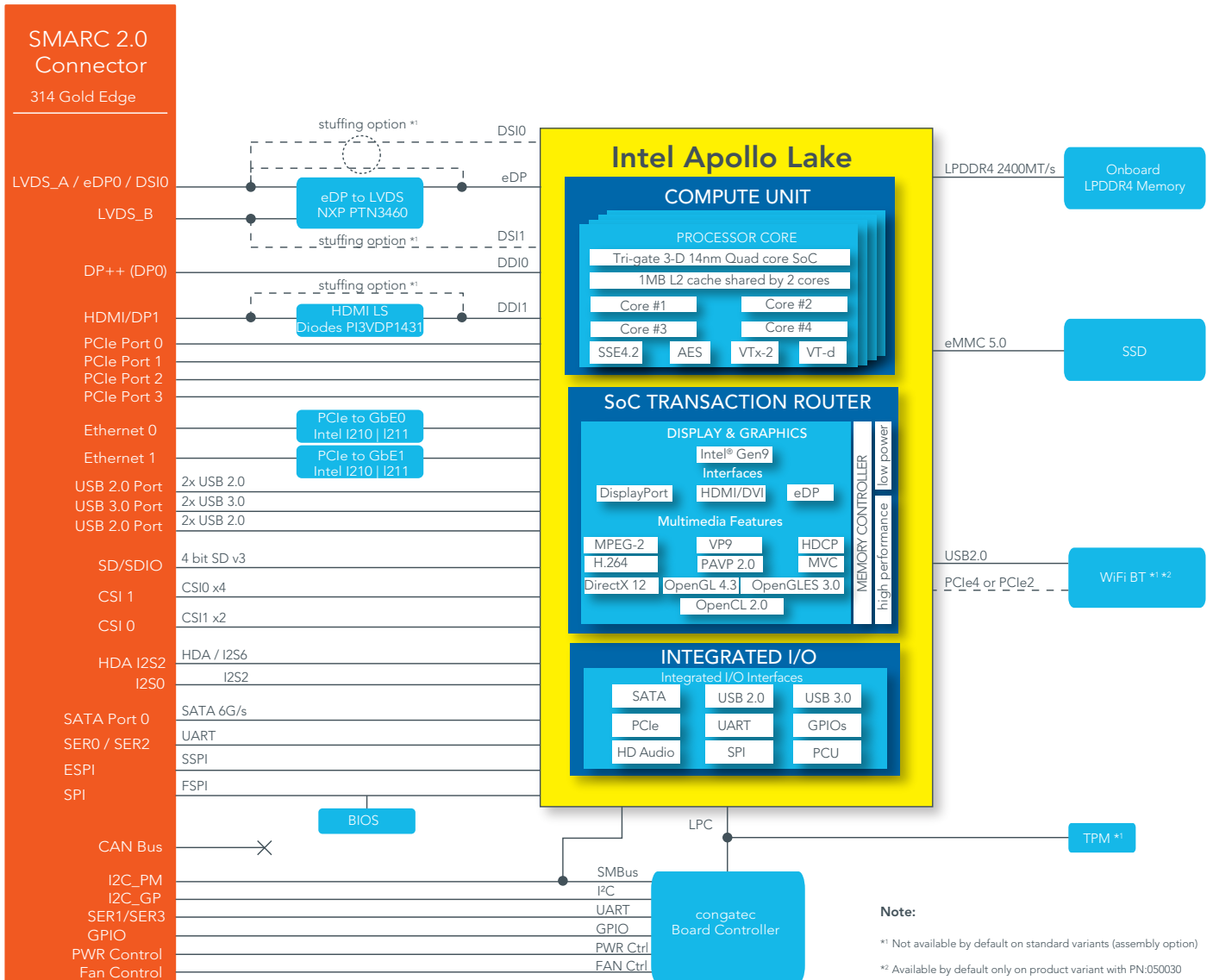


- Low Power Intel® Atom™, Intel® Celeron® and Intel® Pentium® processor
- High performance Intel® Gen. 9 graphics
- Industrial Temperature
- Time Coordinated Computing
- Enhanced Security Execution



Formfactor	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					
Chipset	Integrated in SoC					
Ethernet	2x Intel® I210 (Industrial) /I211 (Commercial) Gigabit Ethernet Controller with SDP support 2x Real Time Trigger					
I/O Interfaces	2x USB3.0 4x USB2.0 1x SATA3 1x SDIO up to 4x PCIe Gen2 2x I²C Bus 2x SPI 4x UART optional M.2 1216 WiFi module (soldered down)					
Mass Storage	eMMC 5.0 onboard flash up to 64 GByte					
Sound	Intel® High Definition Audio (Intel® HD 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 Interface (DDI)	DisplayPort 1.2 up to 4096x2160px or HDMI 1.4b up to 3840x2160px					
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 I²C bus (fast mode) 400 kHz multi master power loss control					
Embedded BIOS Features	AMI Aptio® UEFI 2.x 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: tbd. see manual for full details					
Temperature	Commercial :	Operating: 0 to +60°C	Storage: -20 to +80°C			
	Industrial:	Operating: -40 to +85°C	Storage: -40 to +85°C			
Humidity	Operating:	10 to 90% r. H. non cond.				
	Storage:	50 to 95% r. H. non cond.				
Size	82 x 50 mm (3,23" x 1,97")					

conga-SA5 | Block diagram



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 grade temperature range from -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 grade temperature range from -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 grade temperature range from -40°C to 85°C.
conga-SA5/i-E3950-8G eMMC32	050013	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. Industrial grade temperature range from -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 standoff 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 standoff 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 standoff 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 standoff are with 2.7mm bore hole.
Accessories		
conga-SEVAL	007010	Evaluation Carrier Board for SMARC 2.0 modules.
conga-ACA2	016154	MIPI CSI 2.0 dual camera module for evaluation with SGET standard flat foil interface.
conga-MITX/eDP to DP Adapter	052231	eDP to standard DisplayPort evaluation adapter for congatec Mini-ITX and SMARC 2.0.
cab-MITX-eDP 1-1	14000129	eDP 1-1 cable for congatec Mini-ITX and SMARC 2.0. Both sides are with 40pin ACES eDP connector plug.

This Datasheet should be read in conjunction with "[Errata sheet - congatec xA5 designs](#)", available in the document section of congatec's webportal.



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