PERFECT SOLUTION

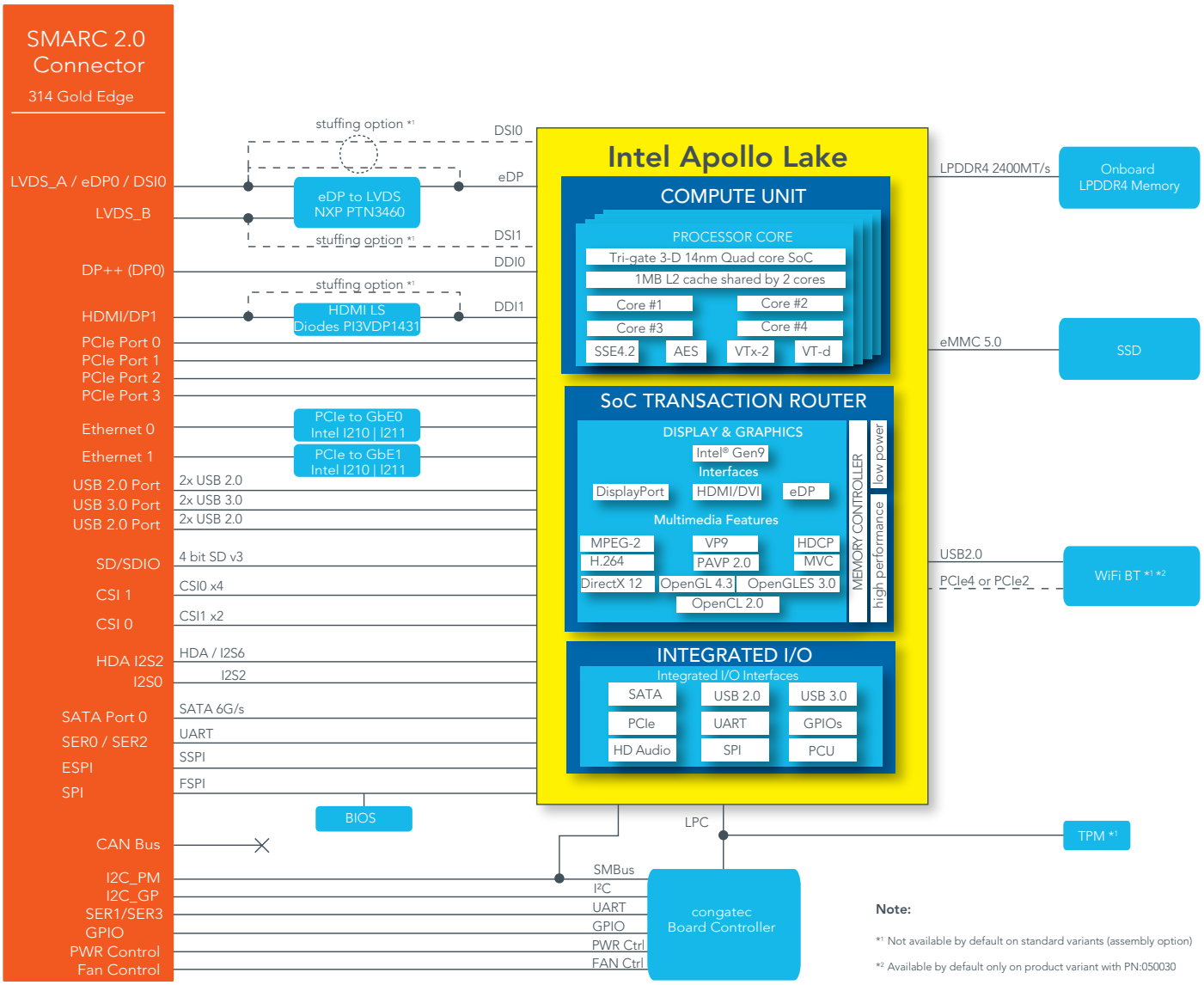
conga-SA5

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

SMARC

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 1MB — 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 1MB — 6W 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 I 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



Note:

*1 Not available by default on standard variants (assembly option)

*2 Available by default only on product variant with PN:050030

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, 1MB L2 cache, 2GB 2133MT/s LPDDR4 onboard memory and 16GB eMMC onboard flash.
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, 1MB 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/N3350-4G eMMC32	050022	SMARC 2.0 module with Intel® Celeron™ N3350 dual core processor with 1.1GHz core frequency up to 2.3GHz, 1MB 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/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-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	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.

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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