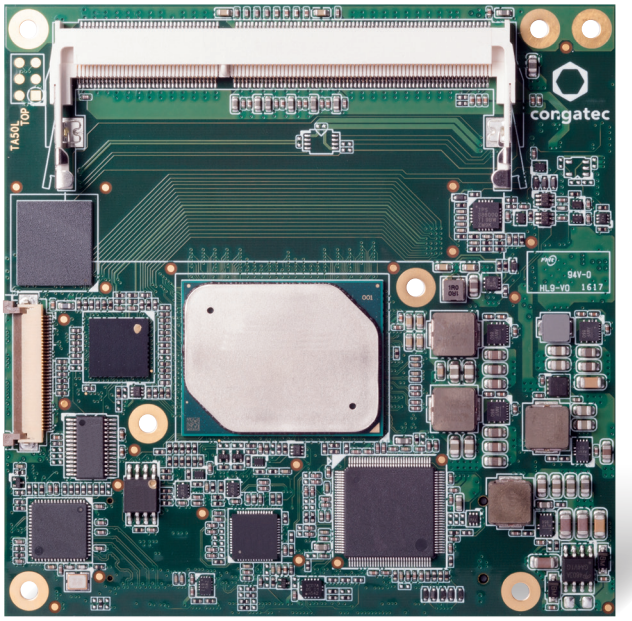
LOW POWER CONSUMPTION

conga-TCA5

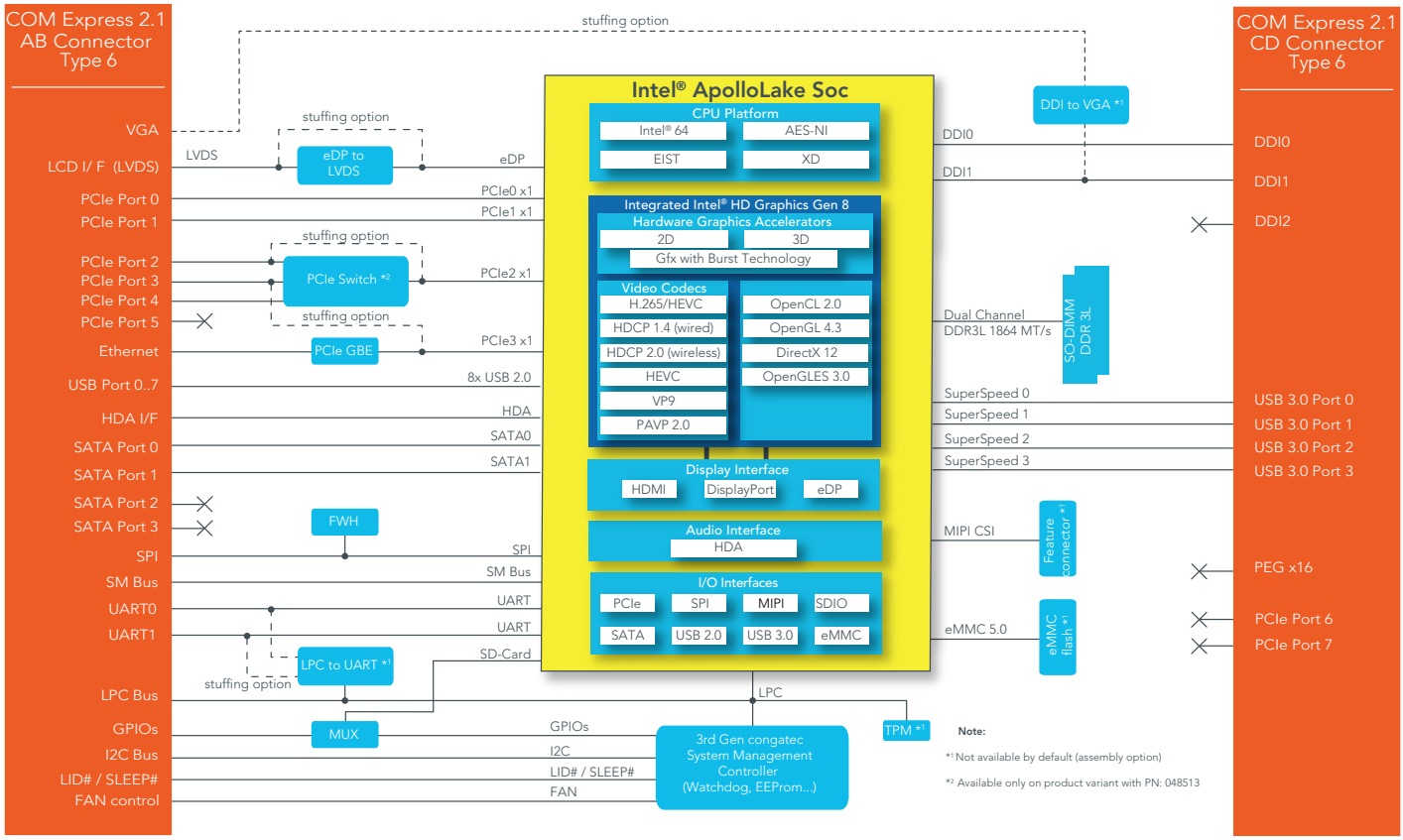


- Intel® Pentium® Quad Core on COM Express
- Enhanced Security Execution
- Up to 3 independent Ultra HD displays

COM Express®

Formfactor	Formfactor COM Express® Compact | (95 x 95 mm) | Type 6 Connector Layout
CPU	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® 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 — 9.5W TDP Intel® Atom™ x5-E3930 — 1.80 GHz (Burst) | 1.3 GHz Clock — Dual Core — L2 cache 2MB — 6.5W TDP
DRAM	2 SO-DIMM sockets for DDR3L memory modules up to 8 GByte with 1867 MT/s | Dual channel memory interface for increased graphics performance
Chipset	Integrated in SoC
Ethernet	Intel I210 (Industrial) /I211 (Commercial) Gigabit Ethernet Controller
I/O Interfaces	5x PCIe x1 | 4x USB 3.0 (XHCI) | 8x USB 2.0 (EHCI) | 2x SATA III | LPC | SPI | I²C bus (fast mode 400 kHz | multi-master) | SDIO 2x UART (RX/TX)s | opt. 2x MIPI-CSI
Mass Storage	opt. eMMC 5.0 onboard flash up to 64 GByte
Sound	Digital High Definition Audio Interface
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.
Digital Display Interface (DDI)	Up to 2x DisplayPort 1.2a or 2x HDMI 1.4b (max. 3840x2160 @ 30Hz) | 1x eDP 1.3 (optional)
congatec Board Controller	Multi Stage Watchdog | non-volatile User Data Storage | Manufacturing and Board Information | Board Statistics | BIOS Setup Data Backup I²C bus (fast mode, 400 kHz, multi-master) | Power Loss Control
Embedded BIOS Features	OEM Logo | OEM CMOS Defaults | LCD Control | Display Auto Detection | Backlight Control | Flash Update | based on AMI Aptio UEFI
Security	Trusted Platform Module (TPM) optional. Hash and RSA algorithms | key lengths up to 2048 bits | real random number generator
Power Management	ACPI 5.0 with battery support
Operating Systems	Microsoft® Windows 10 | Microsoft® Windows 10 IoT Enterprise | Microsoft® Windows 10 IoT Core | Linux | Yocto
Power Consumption	see user's guide for full details | CMOS Battery Backup
Temperature	Commercial : Operating: 0 to +60°C Storage: -20 to +80°C Industrial: Operating: -40 to +85°C Storage: -20 to +80°C
Humidity	Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.
Size	95 x 95 mm (3.74" x 3.74")

conga-TCA5 | Block diagram



conga-TCA5 | Order Information

Article	PN	Description
conga-TCA5/i-E3950	048510	COM Express Compact module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache and up to 8GB 1866MT/s DDR3L SODIMM memory support. Industrial grade temperature range from -40°C to 85°C.
conga-TCA5/i-E3940	048511	COM Express Compact module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz, 2MB L2 cache and up to 8GB 1866MT/s DDR3L SODIMM memory support. Industrial grade temperature range from -40°C to 85°C.
conga-TCA5/i-E3930	048512	COM Express Compact module with Intel® Atom™ x5-E3930 dual core processor with 1.1GHz core frequency up to 1.8GHz, 2MB L2 cache and up to 8GB 1866MT/s DDR3L SODIMM memory support. Industrial grade temperature range from -40°C to 85°C.
conga-TCA5/N3350	048530	COM Express Compact module with Intel® Celeron™ N3350 dual core processor with 1.1GHz core frequency up to 2.4GHz, 2MB L2 cache and up to 8GB 1866MT/s DDR3L SODIMM memory support.
conga-TCA5/N4200	048531	COM Express Compact module with Intel® Pentium® N4200 quad core processor with 1.5GHz core frequency up to 2.5GHz, 2MB L2 cache and up to 8GB 1866MT/s DDR3L SODIMM memory support.
conga-TCA5/i-CSP-T	048555	Passive cooling solution for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga-TCA5/i-CSP-B	048554	Passive cooling solution for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga-TCA5/i-HSP-T	048551	Standard heatspreader for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga-TCA5/i-HSP-B	048550	Standard heatspreader for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga-TCA5/CSP-T	048557	Passive cooling solution for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga-TCA5/CSP-B	048556	Passive cooling solution for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
conga-TCA5/HSP-T	048553	Standard heatspreader for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga-TCA5/HSP-B	048552	Standard heatspreader for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
DDR3L-SODIMM-1866 (2GB)	068730	DDR3L SODIMM memory module with 1866 MT/s and 4GB RAM
DDR3L-SODIMM-1866 (4GB)	068731	DDR3L SODIMM memory module with 1866 MT/s and 8GB RAM
DDR3L-SODIMM-1866 (8GB)	068732	DDR3L SODIMM memory module with 1866 MT/s and 8GB RAM
DDR3L-SODIMM-1866 (2GB) / i-temp	068733	Industrial DDR3L SODIMM memory module with 1866 MT/s and 2GB RAM
DDR3L-SODIMM-1866 (4GB) / i-temp	068734	Industrial DDR3L SODIMM memory module with 1866 MT/s and 4GB RAM
DDR3L-SODIMM-1866 (8GB) / i-temp	068735	Industrial DDR3L SODIMM memory module with 1866 MT/s and 8GB RAM

Accessories		
conga-TEVAL	065810	Evaluation carrier board for Type 6 COM-Express-modules
conga-LDVI/EPI	011115	LVDS to DVI converter board for digital flat panels with onboard EEPROM

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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