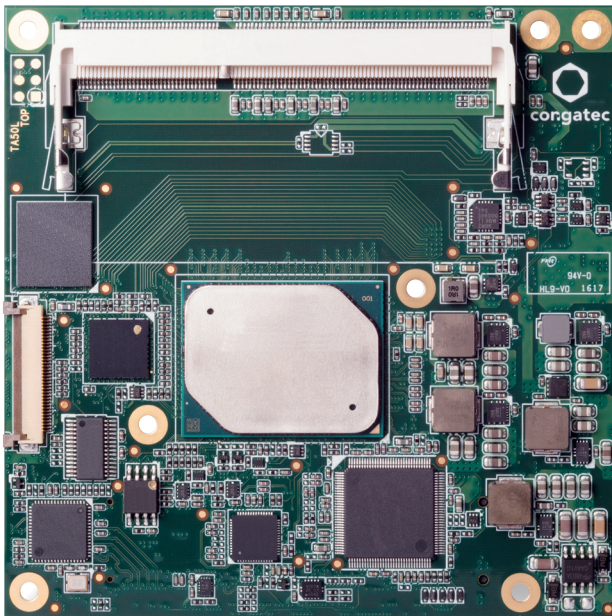


# LOW POWER CONSUMPTION

## conga-TCA5

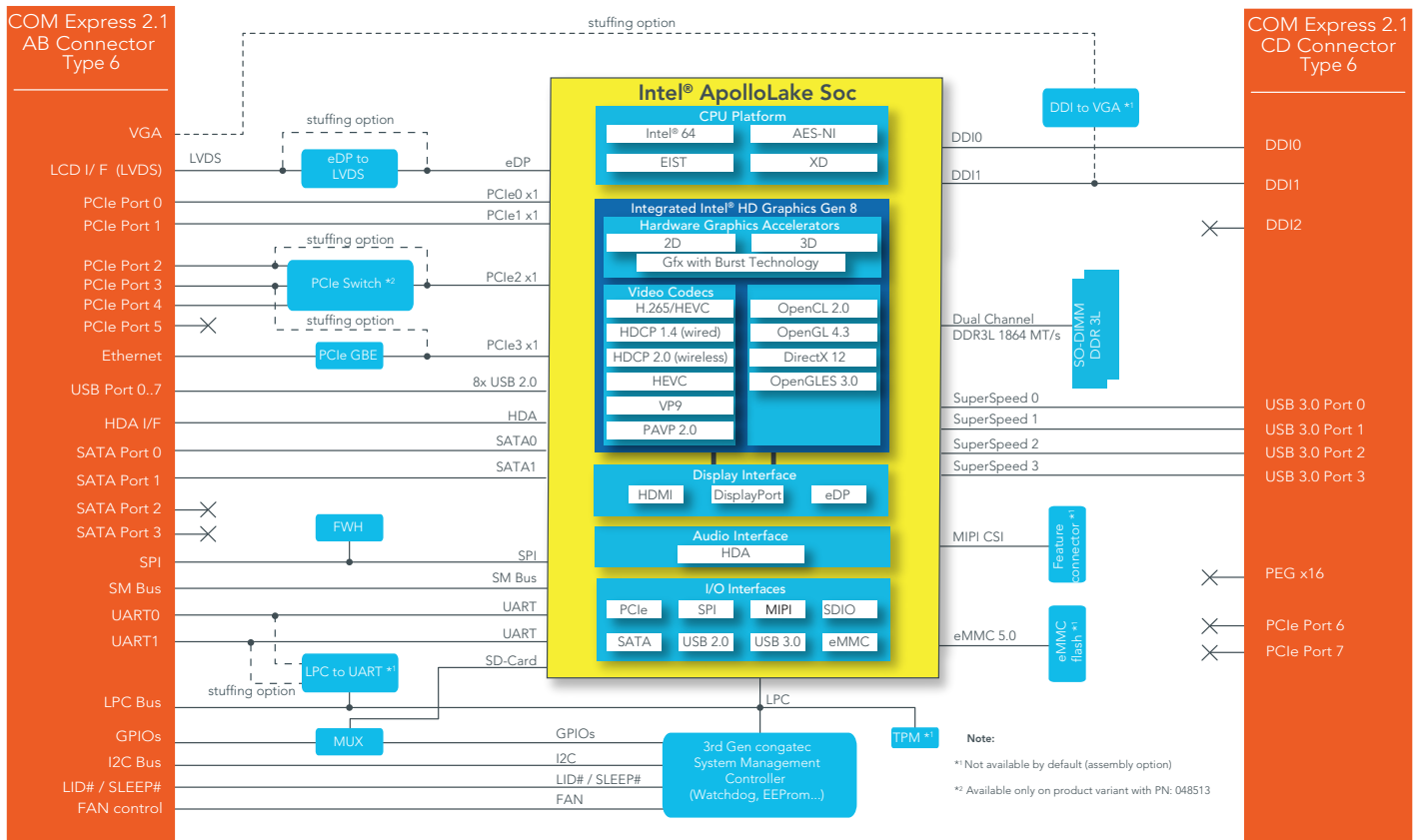


- Intel® Pentium® Quad Core on COM Express
- Enhanced Security Execution
- Up to 3 independent Ultra HD displays

**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   I <sup>2</sup> C 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 I <sup>2</sup> C 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
<b>Accessories</b>		
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.