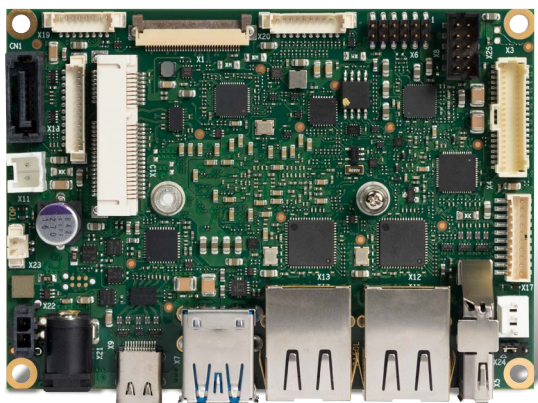


# INDUSTRIAL PICO-ITX

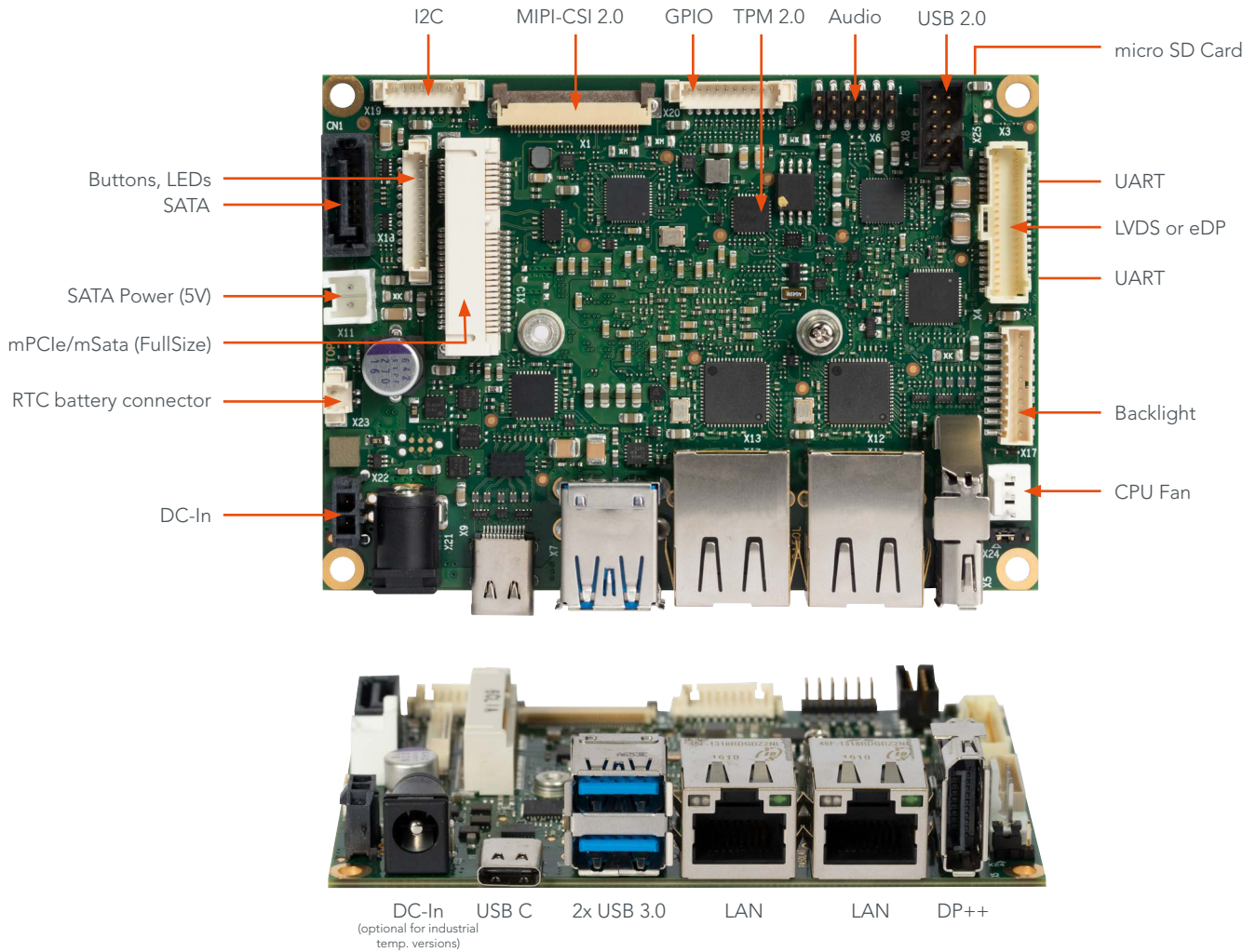
## conga-PA5



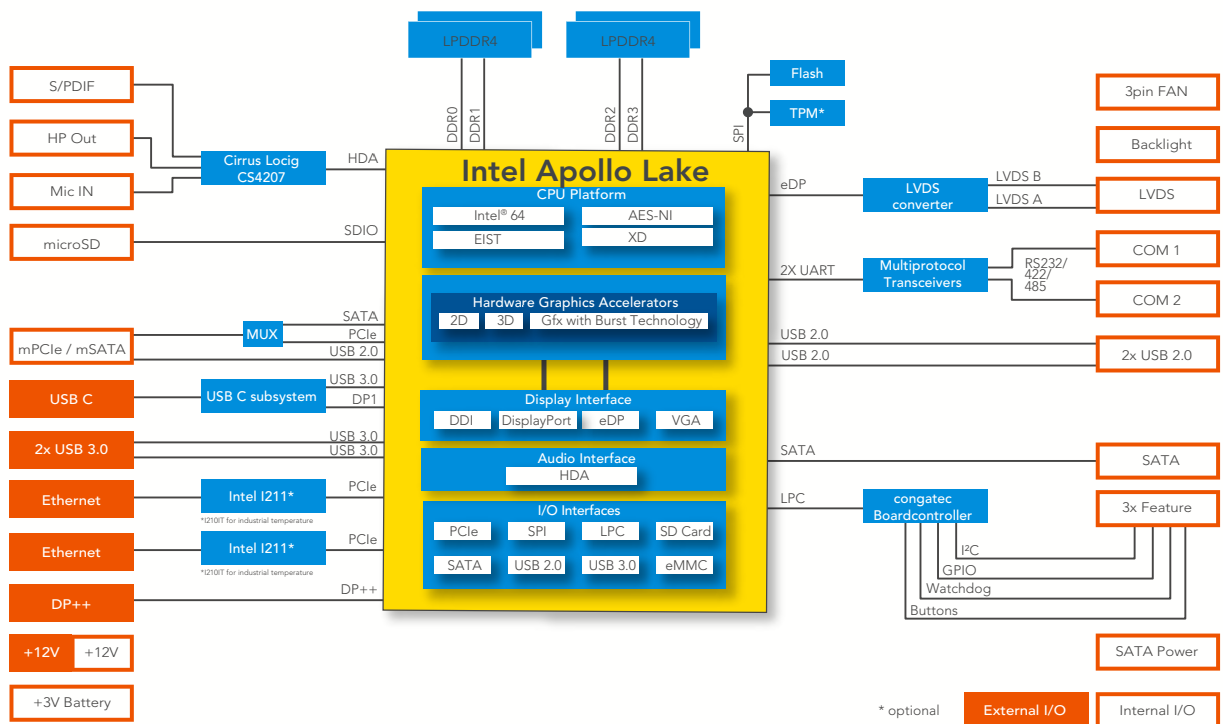
- 5<sup>th</sup> Generation Intel Atom®, Intel® Celeron® and Intel® Pentium® Processors
- Low Power CPUs 6 to 12 Watt TDP
- Enhanced Intel HD Graphics Generation 9
- Compact design for size-sensitive devices in harsh environments
- Long life components for 24/7 embedded use
- Two Intel® i210/211 Ethernet controllers allowing for enhanced industrial communication
- Extended Temperature variants
- On board TPM for enhanced security

Formfactor	pico-ITX Singleboard Computer   100x72 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 9.5W 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 Memory	up to 4 Channels onboard LPDDR4 (V1.1) with up to 2400 MT/s   max. 8 GB				
Chipset	Integrated in SoC				
Ethernet	2x LAN Gbit / 100 Mbit / 10 Mbit   Intel Gigabit Ethernet controller i211 (i210 for industrial temperature variants)				
Sound	High Definition Audio Interface   Cirrus Logic CS4207				
Graphics	Intel® Gen 9 HD Graphics with support for DirectX12   OpenGL 4.3   OpenCL 2.0   OpenGL ES 3.x   MPEG2 full HW acceleration with H.265/HEVC decoding and H.264 encoding   VP9   PAVP 3.x   HDCP 1.4   MVC and 2x independent display support in 4K (3840 x 2160 px) @30 Hz or WQXGA (2560 x 1600 px) @60 Hz				
Graphic Interfaces	1x 18/24-bit Single/Dual Channel LVDS Interface or eDP 1.3   1x DisplayPort DP++   up to 4096x2160 @ 60Hz with DP				
Internal Connectors	1x miniPCIe or mSATA full size   1x SATA (6G) (with auxiliary +5V power connector for 2.5" HDD)   2x USB 2.0   1x LVDS 18/24bit or eDP 1.3   1x Backlight power connector   1x Line Out   1x Mic In   1x S/PDIF Out   1x Power In (+12V)   2x COM (RS232 / RS-485 / RS422)   1x Fan Connector   3x Feature Connector   micro SD Card   MIPI-CSI 2.0				
External Connectors (Frontpanel)	1x DisplayPort DP++   2x LAN RJ45   1x USB 3.0 Type C (with PD and DP++)   2x USB 3.0   1x DC-In (optional for industrial temperature variants)				
congatec embedded 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	AMI Aptio® 2.X (UEFI) BIOS; SM-BIOS   BIOS Update   Logo Boot   Quiet Boot   HDD Password				
Security	Integrated Intel® PTT (TPM 2.0) or Infineon SLB9670 (SPI TPM 2.0)				
Power Specification	Power Supply 12V   RTC battery				
Operating Systems	Microsoft® Windows 10   Microsoft® Windows 10 IoT Enterprise   Microsoft® Windows 10 IoT Core   Linux   Android				
Temperature	Commercial Variants:	Operating Temperature: 0 .. +60°C		Storage Temperature: -20 .. +70°C	
	Industrial Variants:	Operating Temperature: -40 .. +85°C		Storage Temperature: -40 .. +85°C	
Humidity	Operating:	10 - 90% r. H.			
	Storage:	5 - 95% r.H.			
Size	100 x 72 mm (~3.9 x 2.8")				

# conga-PA5 | Connectors



# conga-PA5 | Block diagram



# conga-PA5 | Order Information

conga-PA5 SBC	PN	Description
conga-PA5/E3950-8G	048100	pico-ITX board based on Intel® Atom™ x7-E3950 quad core processor with 2.00 GHz, 2MB cache and 8 GB 2400 MT/s onboard memory
conga-PA5/E3940-4G	048101	pico-ITX board based on Intel® Atom™ x5-E3940 quad core processor with 1.80 GHz, 2MB cache and 4 GB 2133 MT/s onboard memory
conga-PA5/E3930-4G	048102	pico-ITX board based on Intel® Atom™ x5-E3930 dual core processor with 1.80 GHz, 2MB cache and 4 GB 2133 MT/s onboard memory
conga-PA5/i-E3950-8G	048110	pico-ITX board based on Intel® Atom™ x7-E3950 quad core processor with 2.00 GHz, 2MB cache and 8 GB 2400 MT/s onboard memory. Extended temperature version -40°C to 85°C
conga-PA5/i-E3940-4G	048111	pico-ITX board based on Intel® Atom™ x5-E3940 quad core processor with 1.80 GHz, 2MB cache and 4 GB 2133 MT/s onboard memory. Extended temperature version -40°C to 85°
conga-PA5/i-E3930-4G	048112	pico-ITX board based on Intel® Atom™ x5-E3930 dual core processor with 1.80 GHz, 2MB cache and 4 GB 2133 MT/s onboard memory. Extended temperature version -40°C to 85°C
conga-PA5/N4200-8G	048120	pico-ITX board based on Intel® Pentium® N4200 quad core processor with 2.50 GHz, 2MB cache and 8 GB 2400 MT/s onboard memory
conga-PA5/J3455-4G	048122	pico-ITX board based on Intel® Celeron® J3455 quad core processor with 1.52GHz up to 2.30 GHz and 4GB 2400MT/s LPDDR4 onboard memory
conga-PA5/N4200-4G	048123	pico-ITX board based on Intel® Pentium® N4200 quad core processor with 1.5/2.5 GHz and 4GB 2400MT/s LPDDR4 onboard memory
conga-PA5/N3350-4G	048121	pico-ITX board based on Intel® Celeron™ N3350 dual core processor with 2.40 GHz, 2MB cache and 4 GB 2400 MT/s onboard memory

## Cooling Solution

PA5/HSP-T	048150	Heatspreader solution for conga-PA5 based on Pentium and Celeron processors. All standoffs are with M2.5 thread.
PA5/i-HSP-T	048151	Heatspreader solution for conga-PA5 based on Atom E39xx processors. All standoffs are with M2.5 thread.
PA5/CSP-T	048152	Passive cooling solution for conga-PA5 based on Pentium and Celeron processors and heat sink with 12mm heatsink fins. All standoffs are with M2.5 thread.
PA5/i-CSP-T	048153	Passive cooling solution for conga-PA5 based on Atom E39xx processors with 12mm heatsink fins. All standoffs are with M2.5 thread.
PA5/HSP-B	048154	Heatspreader solution for conga-PA5 based on Pentium and Celeron processors. All standoffs are with 2.7mm bore hole.
PA5/i-HSP-B	048155	Heatspreader solution for conga-PA5 based on Atom E39xx processors. All standoffs are with 2.7mm bore hole.

## Accessories

PA5 cable kit	14000203	Cable Kit for conga-PA5 containing cab-Pico-ITX-USB2.0-Twin, cab-Pico-ITX-Audio Cable Adapter, cab-Pico-ITX-Buttons-LED, cab-Pico-ITX-GPIO, cab-Pico-ITX-RS232, cab-Pico-ITX-RS485, cab-Pico-ITX-External-Power, cab-Pico-ITX-Feature, cab-Pico-ITX-SATA-Power, SATA Cable and Mini-PCIe full-size card extender
cab-Pico-ITX-LVDS	14000211	LVDS data cable for Pico-ITX to connect LCD panel AUO G170EG01 V.1 (panel part number #10000132 17" LVDS Panel G170EG01 V.1)
cab-Pico-ITX-Backlight	14000206	Backlight power cable for Pico-ITX to connect LCD panel AUO G170EG01 V.1 (panel part number #10000132 17" LVDS Panel G170EG01 V.1)
cab-Pico-ITX-RS232	14000152	RS232 internal cable adapter, DSUB9 male, length 150mm
cab-Pico-ITX-RS422	14000153	RS422 cable adapter, DSUB9 male, length 150mm
cab-Pico-ITX-RS485	14000154	RS485 cable adapter, DSUB9 male, length 150mm
cab-Pico-ITX-GPIO	14000151	GPIO cable, free end, length 150 mm
cab-Pico-ITX-Buttons-LED	14000147	Buttons and LEDs cable, length 150 mm
cab-Pico-ITX-Power	14000172	Internal power cable for industrial versions of conga-PA5, length 150 mm
Power Supply 60W	10000470	PSU, 60W, 12V/5A, Plug 5.5x2.5mm / 10mm length

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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