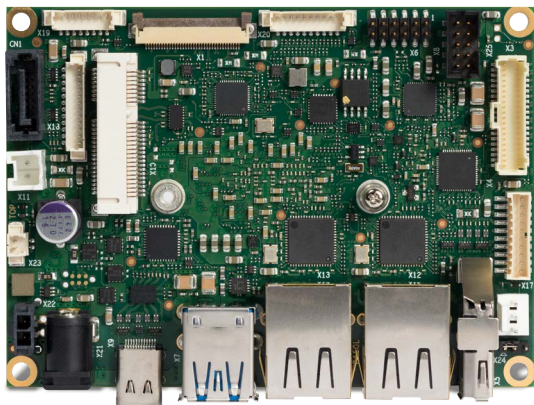


INDUSTRIAL PICO-ITX

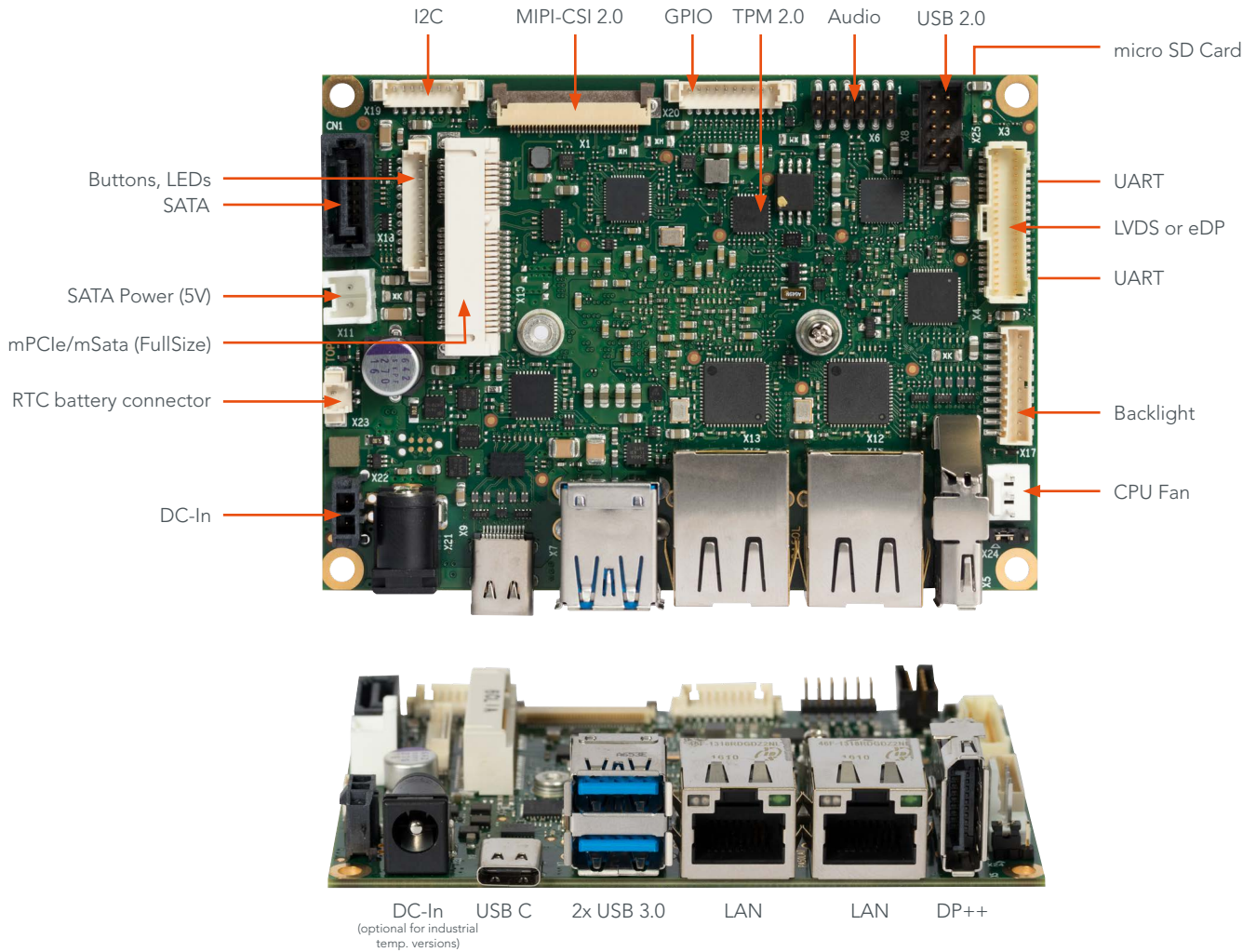
conga-PA5



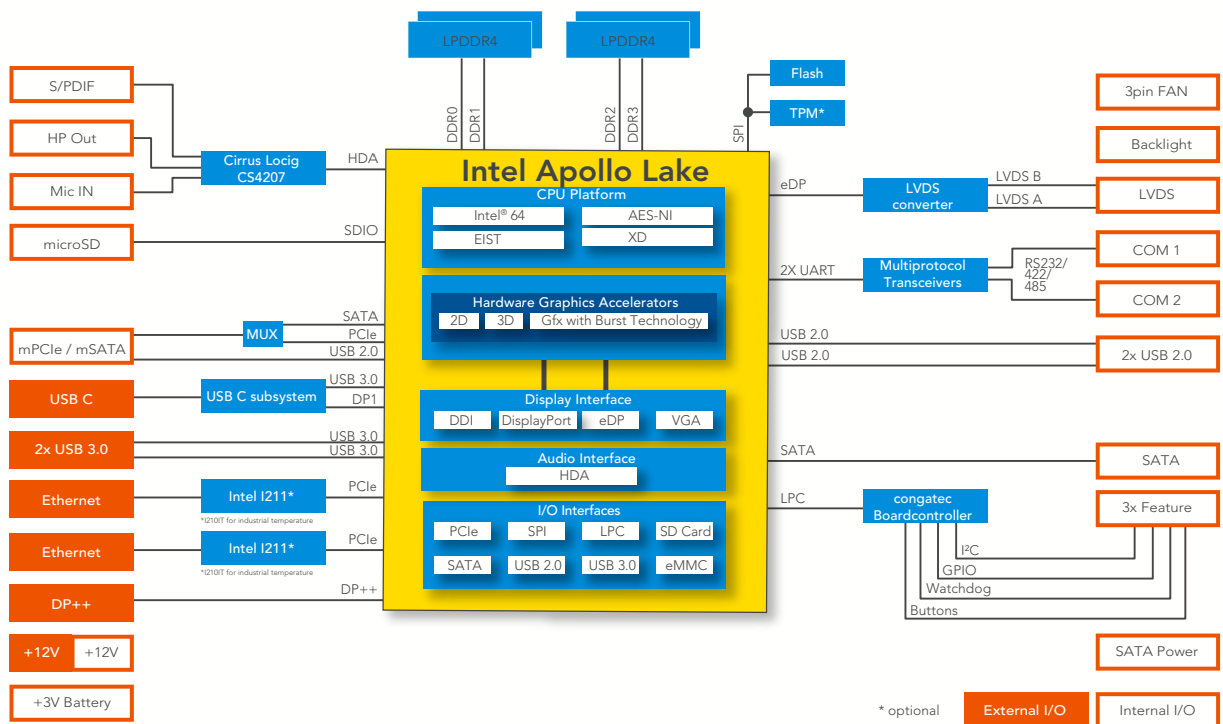
- 5th Generation Intel Atom®, Intel® Celeron® and Intel® Pentium® Processors
- Low Power CPUs 6 to 12 Watt TDP
- Enhanced Intel HD Graphics Generation 9
- Compact design for size-sensitive devices in harsh environments
- Long life components for 24/7 embedded use
- Two Intel® i210/211 Ethernet controllers 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°C |
| 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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