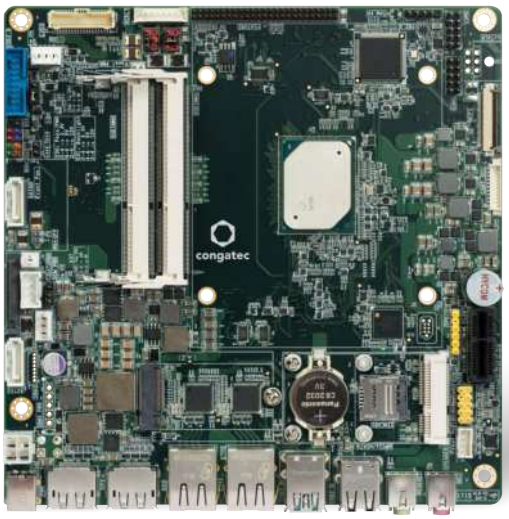
INDUSTRIAL THIN MINI-ITX

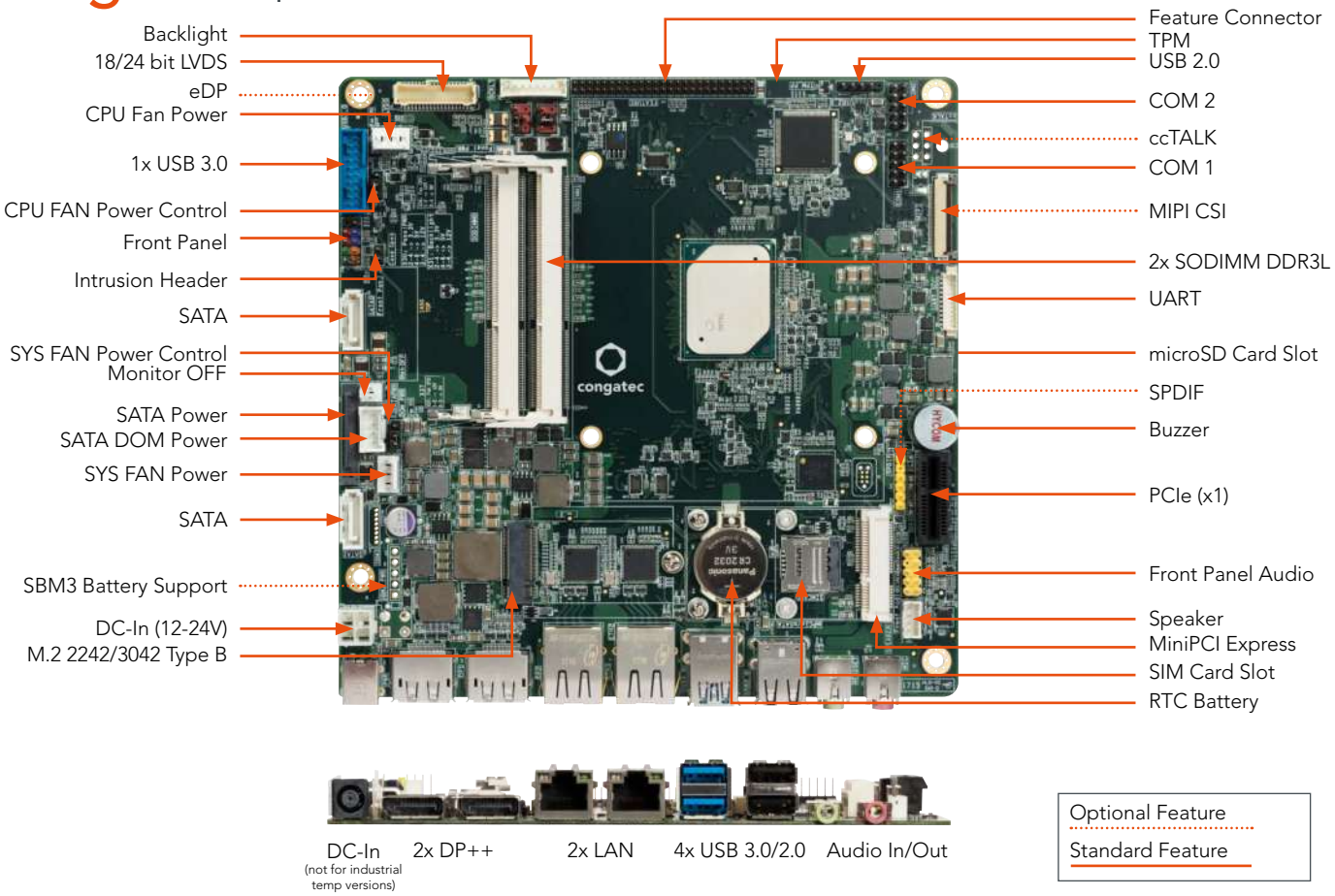
conga-IA5



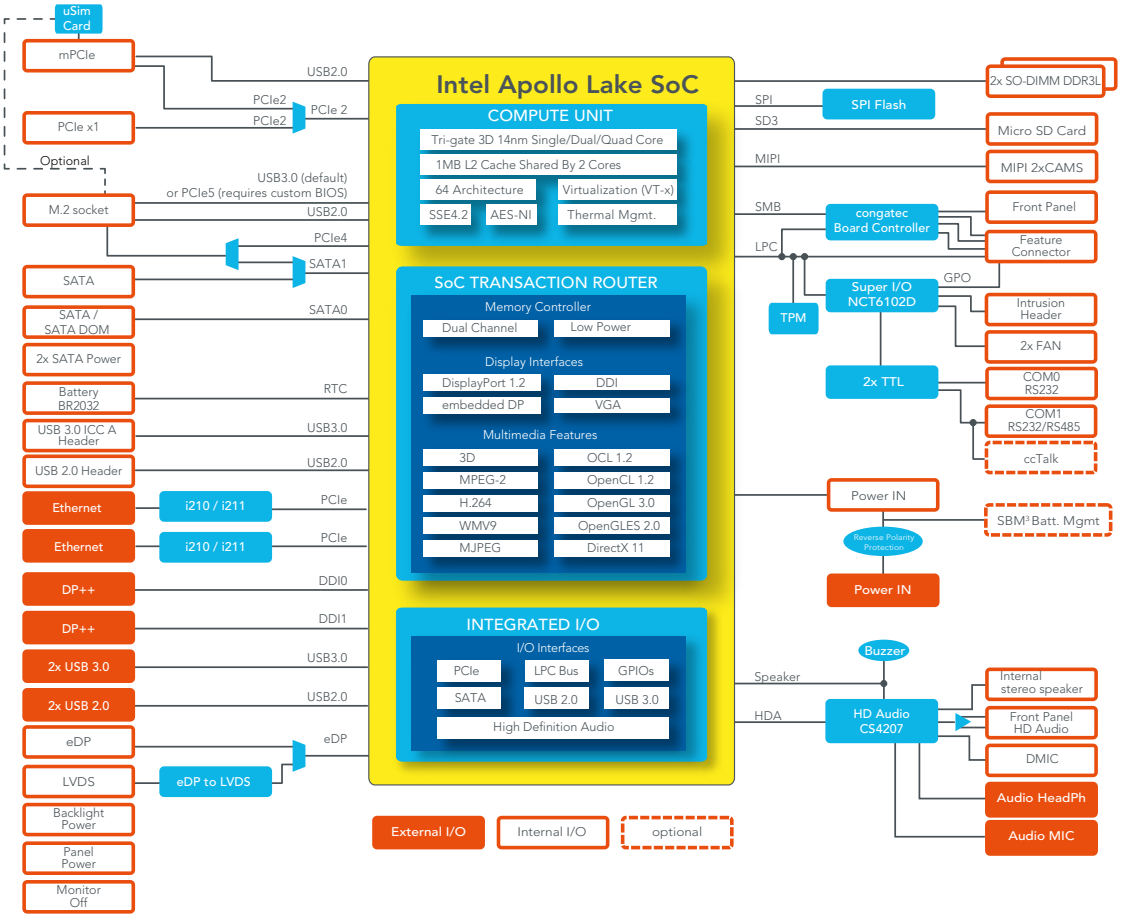
- Industrial Intel® Atom™ E3900 processor series
- Intel® Pentium® and Celeron® processors
- Low Power CPUs 6 to 12 Watt TDP
- Enhanced Intel® HD Graphics generation 9
- Long life components for 24/7 embedded use
- Extended temperature variants
- On board TPM for enhanced security

Formfactor	Industrial Thin-Mini-ITX | 170 x 170 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
DRAM Memory	2x SO-DIMM sockets (dual channel DDR3L up to 1866 MT/s) to support a max. memory size of 8GB
Ethernet	2x Intel® I211 Gigabit Ethernet controller (commercial) | 2x Intel® I210 Gigabit Ethernet controller (Industrial)
Sound	High Definition Audio Interface with Cirrus CS4207
Graphics	Intel® Gen 9 HD Graphics with support for DirectX12 | OpenGL 4.3 | OpenCL 2.0 | OpenGLES 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	18/24-bit Dual Channel LVDS Interface or eDP 1.3 and 2x DisplayPort 1.2
Internal Connectors	1x PCIe x1 Slot shared with mPCIe | 1x mPCIe Half Size shared with PCIe slot | 1x M.2 2242/3042 Type B | 2x SATA (one shared with M2) | 1x SATA Power connector (header) | 1x SATA Power | 1x USB 3.0/2.0 Header | 1x USB 3.0 (on M.2 slot) | 1x USB 2.0 (on miniPCIe slot) | 1x Micro SD Card | 1x SIM Card slot | 18/24 bit LVDS or 1x eDP 1.3 | 1x Backlight (power & control) | 1x Front Panel HD Audio | 2x Serial Port COM1 (opt. as ccTALK) | 1x Frontpanel (Power Switch, LEDs, Reset) | 1x FAN CPU | 1x FAN System | 1x internal power header (12-24V) | 1x opt. battery header signal + power (SBM3)
Feature Connector	congatec custom (8 Bit General Purpose I/O) | SPI(for external BIOS) | SMB | LPC | ACPI S3/S4
External Connectors (Frontpanel)	2x DisplayPort DP++ | 1x LVDS 2x24 bit/shared with eDP 1.3 | 3.5mm Audio In and 3.5mm Line Out | 2x LAN RJ45 | 2x USB 3.0 | 2x USB 2.0 | 1x DC-In (12-24V, only for commercial 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) SM-BIOS | BIOS Update | Logo Boot | Quiet Boot | HDD Password
Security	Discrete "Trusted Platform Module" (TPM 2.0) on board
Power Specification	Power Management | ACPI S3/S4/DeepSx | Wake on time from S5 | Power Supply 12V - 24V | 2x FAN (CPU, system) monitored & controlled
Operating Systems	Microsoft® Windows 10 | Microsoft® Windows 10 IoT | Linux | Yocto
Power Consumption	See manual for full details
Temperature	Commercial Variants: Operating Temperature: 0 to +60°C — Storage Temperature: -20 to +70°C Industrial Variants: Operating Temperature: -40 to +85°C — Storage Temperature: -40 to +85°C
Humidity	Operating: 10 to 90% r. H. non cond. Storage: 5 to 95% r. H. non cond.
Size	170 x 170 mm (~6.7 x 6.7")

conga-IA5| Connectors



conga-IA5 | Block diagram



conga-IA5 | Order Information

conga-IA5 SBC	PN	Description
conga-IA5/E3950	052801	Thin Mini-ITX board based on Intel® Atom™ x7-E3950 quad core processor with 1.6/2.0 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface
conga-IA5/i-E3950	052811	Thin Mini-ITX board based on Intel® Atom™ x7-E3950 quad core processor with 1.6/2.0 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface. Extended temperature version -40°C to 85°C
conga-IA5/E3940	052802	Thin Mini-ITX board based on Intel® Atom™ x5-E3940 quad core processor with 1.6/1.8 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface
conga-IA5/i-E3940	052812	Thin Mini-ITX board based on Intel® Atom™ x5-E3940 quad core processor with 1.6/1.8 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface. Extended temperature version -40°C to 85°C
conga-IA5/E3930	052803	Thin Mini-ITX board based on Intel® Atom™ x5-E3930 dual core processor with 1.3/1.8 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface
conga-IA5/i-E3930	052813	Thin Mini-ITX board based on Intel® Atom™ x5-E3930 dual core processor with 1.3/1.8 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface. Extended temperature version -40°C to 85°C
conga-IA5/N4200	052820	Thin Mini-ITX board based on Intel® Pentium® N4200 quad core processor with 1.5/2.5 GHz, 1866 MT/s dual channel DDR3L SODIMM memory interface
conga-IA5/N3350	052821	Thin Mini-ITX board based on Intel® Celeron® N3350 dual core processor with 1.1/2.4 GHz, 1600 MT/s dual channel DDR3L SODIMM memory interface

conga-IA5 Accessories	PN	Description
Cooling Solution		
conga-IA5/CSP	052830	Passive cooling solution suitable for Mini-ITX conga-IA5 [for versions with Celeron or Pentium CPU]
conga-IA5/i-CSP	052831	Passive Cooling Solution for Mini-ITX conga-IA5 [for versions with E39xx CPU]
conga-IC87/Retention Frame	052254	Retention frame for standard cooling suitable for conga-IC87/97/170/IA5
I/O Shields		
conga-IA4/IO Shield - Standard	052651	IO shield for conga-IA4/IA5 with Standard Mini-ITX height
conga-IA4/IO Shield - Thin	052652	IO shield for conga-IA4/IA5 with Thin Mini-ITX height
Memories		
DDR3L-SODIMM-1866 (2GB)	068730	DDR3L SODIMM, 1.35V &1.5V memory module with 1866 MT/s and 2GB RAM
DDR3L-SODIMM-1866 (4GB)	068731	DDR3L SODIMM, 1.35V &1.5V memory module with 1866 MT/s and 4GB RAM
DDR3L-SODIMM-1866 (8GB)	068732	DDR3L SODIMM, 1.35V &1.5V memory module with 1866 MT/s and 8GB RAM
DDR3L-SODIMM-1866 (2GB) / i-temp	068733	DDR3L SODIMM, 1.35V &1.5V memory module with 1866 MT/s and 2GB RAM supporting extended operating temperature range of -40°C to +85°C
DDR3L-SODIMM-1866 (4GB) / i-temp	068734	DDR3L SODIMM, 1.35V &1.5V memory module with 1866 MT/s and 8GB RAM supporting extended operating temperature range of -40°C to +85°C
DDR3L-SODIMM-1866 (8GB) / i-temp	068735	DDR3L SODIMM, 1.35V &1.5V memory module with 1866 MT/s and 8GB RAM supporting extended operating temperature range of -40°C to +85°C
Cables & Adapters		
conga-Thin mITX/eDP to DP Adapter	052231	eDP to standard DisplayPort evaluation adapter for congatec Thin Mini-ITX boards
Cab-ThinMini-ITX-SATA-Power	14000120	SATA Power Cable, 15pin female 3x, 6pin female 1x, length 500 mm
Cab-ThinMini-ITX-UART	14000121	UART cable, 2x5pin, 2.54mm female header, D-Sub 9P male, length 200mm
Cab-ThinMini-ITX-USB20-Single	14000122	USB2.0 cable - single, 1x5pin, 2.54mm female header, USB A female w/molding, length 200mm
Cab-ThinMini-ITX-LVDS-OE	14000125	eDP cable for conga-IA5, with open end, 40pin, length 250mm
Cab-ThinMini-ITX-BKLT	14000127	Backlight cable for Thin Mini-ITX, 8pin, with open end, length 300mm
Cab-ThinMini-ITX-SATA-Power	14000136	SATA Power Cable, 15pin female 2x, length 300mm
SATA III Cable Straight/Straight	48000029	SATA III cable with data transfer rate of up to 6 Gbps, connector: straight / straight, length 300mm
SATA III Cable Down/Straight	48000030	SATA III cable with data transfer rate of up to 6 Gbps, connector: down / straight, length 300mm
Power Supplies		
Power Supply Unit 65W, 19V / 3.42A	10000145	PSU, 65W, 19V / 3.42A, plug 7.4x5.1mm / 12.5mm length
Power Supply Unit 90W, 19V / 4.74A	10000146	PSU, 90W, 19V / 4.74A, plug 7.4x5.1 / 12.5mm 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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