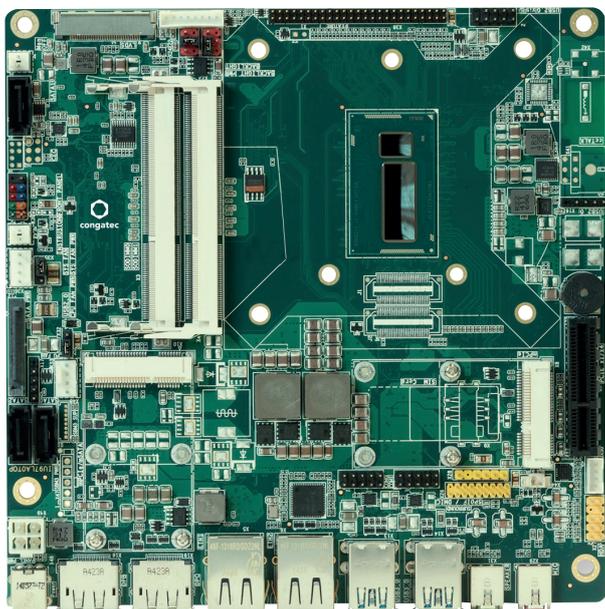# INDUSTRIAL THIN MINI-ITX
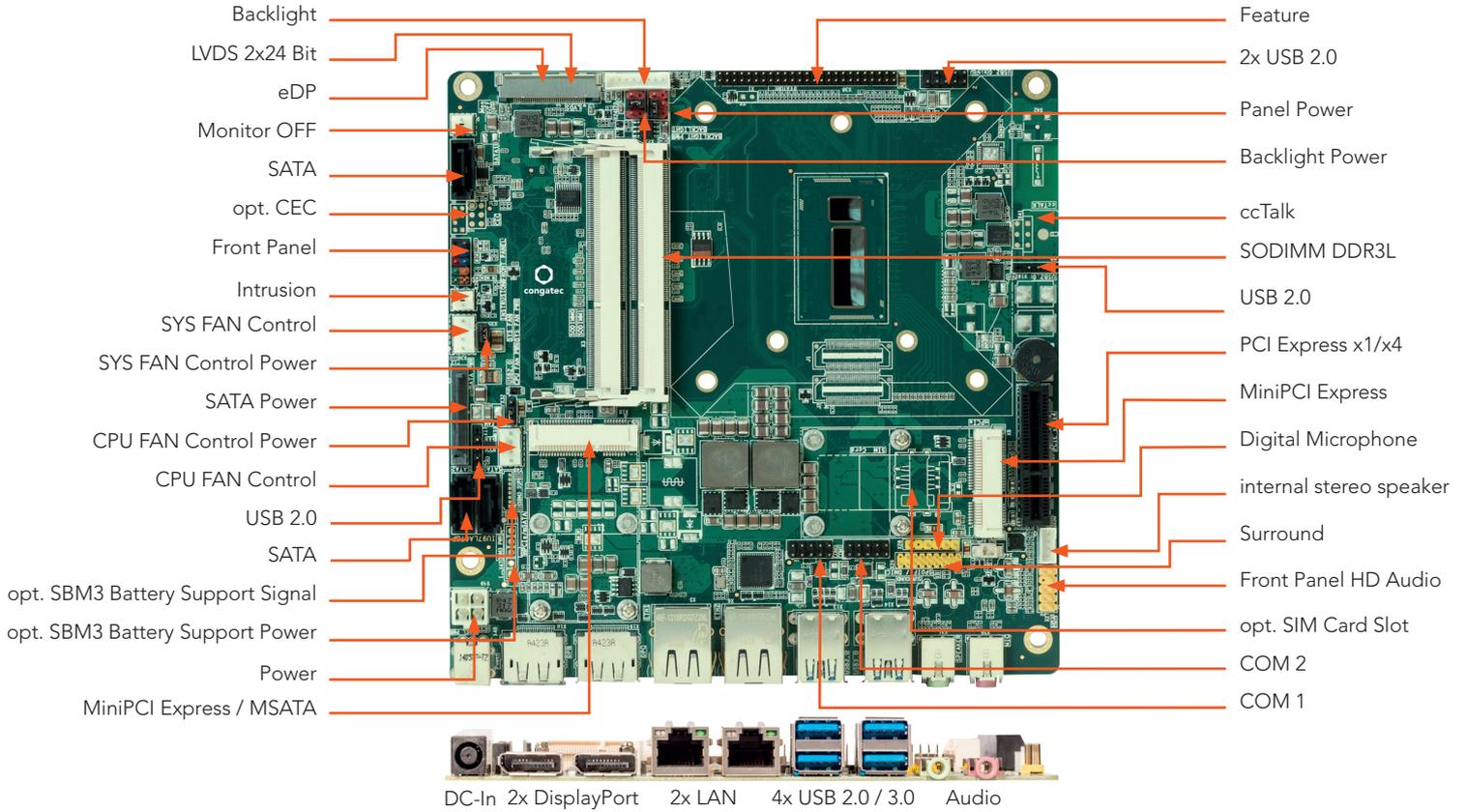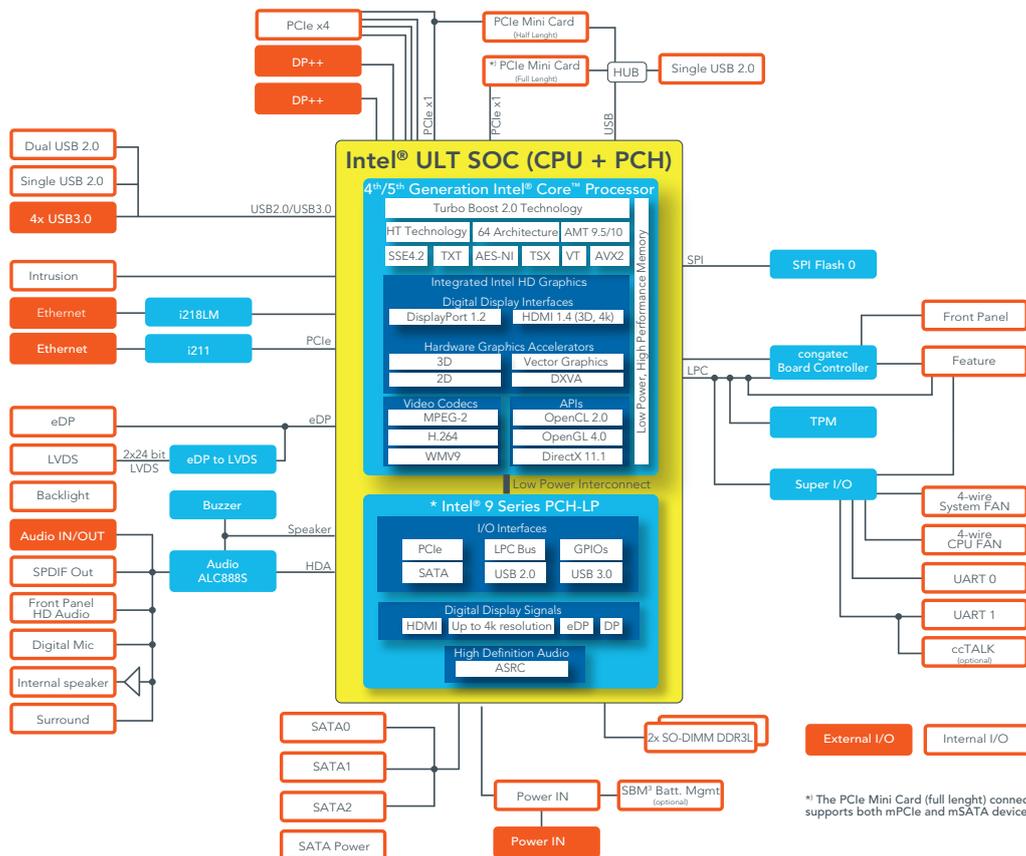# conga-IC97

- Highest Performance Thin Mini-ITX board
- 5th Generation Intel® Core™ Mobile SOC U-Processors
- Improved Graphics Performance up to GT3 HD6000
- Wide Range Power Input 12-24 Volt
- congatec embedded Board Controller Features

Formfactor	Industrial Thin-Mini-ITX	170 x 170 mm

CPU					
Intel® Core™ i7-5650U	2.2 GHz Dual Core	Turbo Boost 3.2 GHz	4 MB Cache	TDP 15W GT3 HD 6000	
Intel® Core™ i5-5350U	1.8 GHz Dual Core	Turbo Boost 2.9 GHz	3 MB Cache	TDP 15W GT3 HD 6000	
Intel® Core™ i3-5010U	2.1 GHz Dual Core		3 MB Cache	TDP 15W HD 6000	
Intel® Celeron® 3765U	1.9 GHz Dual Core		2 MB Cache	TDP 10W HD Graphics	

Intel® Turbo Boost Technology | Intel® Hyper-Threading Technology (Intel® HT Technology) | Intel® Advanced Vector Extensions 2.0 (Intel® AVX2), Intel® Advanced Encryption Standard New Instructions (Intel® AES-NI) | Integrated dual channel memory controller | up to 25.6 GByte/sec. memory bandwidth | Integrated Intel® HD Graphics 6000 series with dynamic frequency up to 1.1 GHz | Intel® Clear Video HD Technology Intel® Virtualization Technology (Intel® VT) | Intel® Trusted Execution Technology (Intel® TXT) | Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2) PCLMULQDQ Instruction | Intel® Secure Key | Intel® Transactional Synchronization Extensions (Intel® TSX)

DRAM Memory	Support for 2x SO DIMM Socket (dual channel DDR3L up to 1600 MT/s)	max. 16GB

Ethernet	Dual LAN Gbit / 100 Mbit / 10 Mbit; 1x Intel Gigabit Ethernet PHY i218LM (with AMT support); 1x Intel Gigabit Ethernet Controller i210/i211

Sound	High Definition Audio Interface	Realtek ALC 888S	7.1-channel

Graphics	Next Generation Intel® HD Graphics with OpenCL 2.0	OpenGL 4.X and DirectX11.1 support; up to three independent displays: HDMI 1.4	DVI, DisplayPort 1.2; High performance hardware MPEG-2 decoding	WMV9 (VC-1) and H.264 (AVC) support Blu-ray support @ 40 MBit/s

Graphic Interfaces	1x 24-bit Dual Channel LVDS Interface or eDP (x4) and 2x DisplayPort

Internal Connectors	1x PCIe x4 Slot (Gen.2)	1x Full/Half-size Mini PCIe Slot shared with PCIe x1 slot	1x Full/Half-size Mini PCIe Slot (shared with mSATA)	3x SATA (6G)	1x mSATA (SATA-III; 600)	1x SATA Power	4x USB 2.0	1x LVDS (2x24 bit)	1x Embedded DisplayPort (x4)	1x Backlight (Power | control)	1x Monitor OFF	1x Surround	1x Front Panel HD Audio	1x Digital Microphone (SPDIF)	1x Internal stereo speaker 1x Serial Port COM1 (opt. as ccTALK)	1x Serial Port COM2	1x Feature connector - congatec custom (8 Bit General Purpose I/O)	1x Frontpanel (Power Switch, LEDs, Reset)	1x Intrusion (Case Open)	1x FAN CPU	1x FAN System	1x internal power header (12-24V)	1x opt. battery header signal + power (SBM3)	1x opt. CEC	1x opt. SIM Card Slot

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

External Connectors (Frontpanel)	2x DisplayPort dp++	Audio In	Line Out	2x LAN RJ45	4x USB 3.0/2.0	1x PCIe x4 (via extension card)	1x DC-In (external input)

Embedded BIOS	AMI Aptio® 2.X (UEFI) BIOS; SM-BIOS	BIOS Update	Logo Boot	Quiet Boot	HDD Password

Security	The conga-IC97 can be optionally equipped with a discrete "Trusted Platform Module" (TPM 1.2 / 2.0). It is capable of calculating efficient hash and RSA algorithms with key lengths up to 2,048 bits and includes a real random number generator. Security sensitive applications such as gaming and e commerce will benefit also with improved authentication, integrity and confidence levels.

Power Specification	Power Management	ACPI S3/S4/DeepSx	Wake on time from S5	Power Supply 12V - 24V	2 x FAN (CPU | system) monitored & controlled

Operating Systems	Microsoft® Windows 10 |Microsoft® Windows 10 IoT Enterprise |Microsoft® Windows 8	Microsoft® Windows 7	Linux	Microsoft® Windows® 7/8 embedded Standard

Power Consumption	Typ. application: tbd.	see manual for full details

Temperature:	Operating: 0 .. +60°C

Humidity Operating:	Operating: 10 - 90% r. H. non cond.

Size	170 x 170 mm (6.7" x 6.7")

conga-IC97 | Connectors

Backlight
LVDS 2x24 Bit
eDP
Monitor OFF
SATA
opt. CEC
Front Panel
Intrusion
SYS FAN Control
SYS FAN Control Power
SATA Power
CPU FAN Control Power
CPU FAN Control
USB 2.0
SATA
opt. SBM3 Battery Support Signal
opt. SBM3 Battery Support Power
Power
MiniPCI Express / MSATA

Feature
2x USB 2.0
Panel Power
Backlight Power
ccTalk
SODIMM DDR3L
USB 2.0
PCI Express x1/x4
MiniPCI Express
Digital Microphone
internal stereo speaker
Surround
Front Panel HD Audio
opt. SIM Card Slot
COM 2
COM 1

congatec

DC-In   2x DisplayPort   2x LAN   4x USB 2.0 / 3.0   Audio

conga-IC97 | Block diagram

PCIe x4
DP++
DP++

PCIe Mini Card (Half Lenght)
*) PCIe Mini Card (Full Lenght)
HUB
Single USB 2.0

Dual USB 2.0
Single USB 2.0
4x USB3.0

Intrusion
Ethernet — i218LM
Ethernet — i211

eDP
LVDS — 2x24 bit LVDS — eDP to LVDS
Backlight
Audio IN/OUT
SPDIF Out
Front Panel HD Audio
Digital Mic
Internal speaker
Surround

Buzzer
Audio ALC888S

USB2.0/USB3.0

PCIe

eDP

Speaker

HDA

Intel® ULT SOC (CPU + PCH)

4th/5th Generation Intel® Core™ Processor

Turbo Boost 2.0 Technology

| HT Technology | 64 Architecture | AMT 9.5/10 |
| SSE4.2 | TXT | AES-NI | TSX | VT | AVX2 |

Integrated Intel HD Graphics

Digital Display Interfaces

| DisplayPort 1.2 | HDMI 1.4 (3D, 4k) |

Hardware Graphics Accelerators

| 3D | Vector Graphics |
| 2D | DXVA |

Video Codecs / APIs

MPEG-2	OpenCL 2.0
H.264	OpenGL 4.0
WMV9	DirectX 11.1

Low Power Interconnect

* Intel® 9 Series PCH-LP

I/O Interfaces

| PCIe | LPC Bus | GPIOs |
| SATA | USB 2.0 | USB 3.0 |

Digital Display Signals

| HDMI | Up to 4k resolution | eDP | DP |

High Definition Audio

ASRC

Low Power, High Performance Memory

SPI — SPI Flash 0

LPC

congatec Board Controller
Front Panel
Feature
TPM
Super I/O

4-wire System FAN
4-wire CPU FAN
UART 0
UART 1
ccTALK (optional)

SATA0
SATA1
SATA2
SATA Power

Power IN
SBM³ Batt. Mgmt (optional)

2x SO-DIMM DDR3L

External I/O   Internal I/O

Power IN

*) The PCIe Mini Card (full lenght) connector supports both mPCIe and mSATA devices.

congatec

www.congatec.com

conga-IC97 | Order Information

Article	PN	Description
conga-IC97/i7-5650U	052501	Thin Mini-ITX board based on 5th Gen Intel® Core™ i7-5650U dual core processor with 2.2GHz, 4MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface
conga-IC97/i5-5350U	052502	Thin Mini-ITX board based on 5th Gen Intel® Core™ i5-5350U dual core processor with 1.8GHz, 3MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface
conga-IC97/i3-5010U	052503	Thin Mini-ITX board based on 5th Gen Intel® Core™ i3-5010U dual core processor with 2.1GHz, 3MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface
conga-IC97/3765U	052504	Thin Mini-ITX board based on Intel® Celeron® 3765U dual core processor with 1.90GHz, 2MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface.

Accessories

Article	PN	Description
conga-IC87/CSA	052252	Active cooling solution for conga-IC97 and with 12V fan and Thin Mini-ITX height
conga-IC87/Retention Frame	052254	Retention frame for standard cooling (PN: 052252) for conga-IC97
conga-IC87/IO Shield-Standard	052256	IO shield for conga-IC97 with Standard Mini-ITX height
conga-IC87/IO Shield - Thin	052257	IO shield for conga-IC97 with Thin Mini-ITX height
DDR3L-SODIMM-1600 (2GB)	068755	DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 2GB RAM
DDR3L-SODIMM-1600 (4GB)	068756	DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 4GB RAM
DDR3L-SODIMM-1600 (8GB)	068757	DDR3L SODIMM memory module with 1600 MT/s (PC3L-12800S) and 8GB RAM
conga-Thin MITX/eDP to DP Adapter	052231	eDP to standard DisplayPort evaluation adapter for congatec Thin Mini-ITX boards
conga-Thin MITX/eDP to HDMI Adapter	052232	eDP to standard HDMI evaluation adapter for congatec Thin Mini-ITX boards
conga-Thin MITX/LVDS Adapter	052233	LVDS pin header evaluation adapter for congatec Thin Mini-ITX boards
PS65	10000145	65 Watt power supply, 19V, 3.42 A, plug 7.4x5.1x12.5mm
PS90	10000146	90 Watt power supply, 19V, 4.74 A, plug 7.4x5.1x12.5mm
cab-ThinMini-ITX-UART	14000121	UART cable with 9pin DSUB connector for congatec Thin Mini-ITX family
cab-ThinMini-ITX-eDP 1-1	14000129	eDP 1-1 cable for congatec Thin Mini-ITX family. Both sides are with 40pin ACES eDP connector plug.
cab-ThinMini-ITX-LVDS-OE	14000125	LVDS cable with open end for congatec Thin Mini-ITX family. Can be used also for eDP with open end.
cab-ThinMini-ITX-BKLT	14000127	Backlight cable for congatec Thin Mini-ITX family
cab-DP to HDMI Passive	14000128	Passive DisplayPort to HDMI cable
cab-ThinMini-ITX-USB20-Single	14000122	Single USB 2.0 cable for congatec Thin Mini-ITX family
cab-ThinMini-ITX-USB20-Twin	14000123	Dual USB 2.0 cable for congatec Thin Mini-ITX family
SATA III cable 30cm, straigth/straight	48000029	SATA III cable with 30cm length, shielded, end connectors straigth/straight
SATA III cable 30cm, down/straight	48000030	SATA III cable with 30cm length, shielded, end connectors down/straight
cab-ThinMini-ITX-SATA-Power	14000120	SATA power cable for congatec Thin Mini-ITX family. One end 15 pin SATA connector to to 3x15 pin SATA connector
LE910 Mini PCIe		4G / LTE Mini PCI Express card
HE910 Mini PCIe		3G / UMTS / HSPA+ Mini PCI Express card
SSD 256		256 GByte Intel® SSD Pro 2500 Series (16nm, MLC)
SSD 128		128 GByte Intel® SSD Pro 2500 Series (16nm, MLC)

congatec

www.congatec.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[congatec](#):
  [conga-IC97/i3-5010U](#) [conga-IC97/3765U](#) [conga-IC97/i7-5650U](#) [conga-IC97/i5-5350U](#) [conga-IC97/CSA](#)