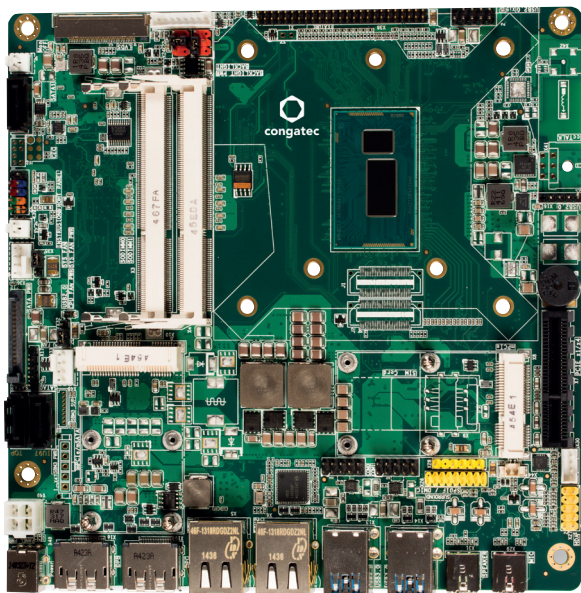


# INDUSTRIAL THIN MINI-ITX

## conga-IC87



- Highest Performance Thin Mini-ITX board
- 4<sup>th</sup> Generation Intel® Core™ Mobile SOC U-Processors
- Wide Range Power Input 12-24 Volt
- congatec embedded Board Controller Features

|                                  |  |
|----------------------------------|--|
| Formfactor                       | Industrial Thin-Mini-ITX   170 x 170 mm  |
| CPU                              | <p>Intel® Core™ i7-4650U      1.7 GHz Dual Core      Turbo Boost 3.3 GHz      4 MB Cache      TDP 15W</p> <p>Intel® Core™ i5-4300U      1.9 GHz Dual Core      Turbo Boost 2.9 GHz      3 MB Cache      TDP 15W</p> <p>Intel® Core™ i3-4010U      1.7 GHz Dual Core                                   3 MB Cache      TDP 15W</p> <p>Intel® Celeron® 2980U      1.6 GHz Dual Core                                   3 MB Cache      TDP 15W</p> <p>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 5000 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)</p> |
| 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 1.2   OpenGL 4.0 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<br>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 (12-19V)   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 I <sup>2</sup> C 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-IC87 can be optionally equipped with a discrete "Trusted Platform Module" (TPM 1.2). 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 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-IC87 | Connectors



# conga-IC87 | Block diagram



# conga-IC87 | Order Information

| Article                 | PN     | Description  |
|-------------------------|--------|--|
| conga-IC87/i7-4650U     | 052201 | Thin Mini-ITX board based on 4th Gen Intel® Core™ i7-4650U dual core processor with 1.7GHz, 4MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface   |
| conga-IC87/i5-4300U     | 052202 | Thin Mini-ITX board based on 4th Gen Intel® Core™ i5-4300U dual core processor with 1.9GHz, 3MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface   |
| conga-IC87/i3-4010U     | 052203 | Thin Mini-ITX board based on 4th Gen Intel® Core™ i3-4010U dual core processor with 1.7GHz, 3MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface   |
| conga-IC87/2980U        | 052204 | Thin Mini-ITX board based on Intel® Celeron® 2980U dual core processor with 1.6GHz, 2MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface   |
| conga-IC87/i7-4650U KIT | 052211 | Thin Mini-ITX single kit box based on 4th Gen Intel® Core™ i7-4650U dual core processor with 1.7GHz, 4MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface. The single package kit includes IO shield, one SATA drive cable, one SATA power cable and a quick-start guide |
| conga-IC87/i5-4300U KIT | 052212 | Thin Mini-ITX single kit box based on 4th Gen Intel® Core™ i5-4300U dual core processor with 1.9GHz, 3MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface. The single package kit includes IO shield, one SATA drive cable, one SATA power cable and a quick-start guide |
| conga-IC87/i3-4010U KIT | 052213 | Thin Mini-ITX single kit box based on 4th Gen Intel® Core™ i3-4010U dual core processor with 1.7GHz, 3MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface  |
| conga-IC87/2980U KIT    | 052214 | Thin Mini-ITX single kit box based on Intel® Celeron® 2980U dual core processor with 1.6GHz, 2MB L2 cache and 1600MT/s dual channel DDR3L SODIMM memory interface. The single package kit includes IO shield, one SATA drive cable, one SATA power cable and a quick-start guide         |

## Accessories

|  |          |   |
|--|----------|---|
| conga-IC97/CSA                         | 052252   | Active cooling solution for conga-IC87 and with 12V fan and Thin Mini-ITX height                                |
| conga-IC87/Retention Frame             | 052254   | Retention frame for standard cooling (PN: 052252) for conga-IC87  |
| conga-IC87/IO Shield-Standard          | 052256   | IO shield for conga-IC87 with Standard Mini-ITX height  |
| conga-IC87/IO Shield - Thin            | 052257   | IO shield for conga-IC87 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, straight/straight | 48000029 | SATA III cable with 30cm length, shielded, end connectors straight/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)  |



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- Защита от снятия компонента с производства.



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