HIGHEST QSEVEN PERFORMANCE

conga-QA5

- Intel® Atom™ Quad Core processor on Qseven
- Intel 9th generation (Gen 9) LP graphics
- Up to 4k resolution (4096x2160@60Hz)
- 4K Codec Decode & Encode for HEVC, H.264, VP8
- Fast I/Os: SATA3, USB 3.0 and PCIe 2.0

Formfactor
Qseven Form Factor Rev. 2.0 compliant | 70x70 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 | 9W TDP
- Intel® Atom™ x5-E3930 1.80 GHz ( Burst) | 1.3 GHz Clock | Dual Core | L2 cache 2MB | 6.5W 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
- Dual Channel | up to 8GB onboard DDR3L with 1867 MT/s

Chipset
- Integrated in SoC

Ethernet
- Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller

I/O Interfaces
- 3x PCIe Gen2 | 1x USB 3.0/2.0 | 5x USB 2.0 | 2x SATA3 | SDv3 | LPC Bus | SMBus | I2C Bus | UART

Mass Storage
- eMMC 5.0 onboard flash up to 64 GByte

Sound
- Intel® High Definition Audio (Intel® HD Audio)

Graphics
- Intel® HD Graphics 500 with support for 4k Ultra HD displays | DirectX 12 | OpenGL 4.4 | OpenCL 1.1 | H.265 (wireless) | Video decode hardware acceleration including support for 4k60 HEVC (H.265), H.264, MVC, VP8, VP9, VC-1, WMV9, JPEG/MJPEG | Video encode hardware acceleration including support for 4k30 HEVC (H.265), H.264, MVC, VP8, JPEG/MJPEG
- 18/24-bit Single/Dual Channel LVDS Interface, resolutions up to 1920x1200@60Hz | VESA standard or JEIDA data mapping
- Automatic Panel Detection via EDID/EPI | shared with eDP 1.3 supporting up to 3840x2160@60 Hz (option)
- DisplayPort 1.2 up to 4096x2160@60Hz or HDMI 1.4b up to 3840x2160@30Hz

LVDS
- 1x MII/CSI x4 and 1x MII/CSI x2

congatec Board controller
- Multistage watchdog | non-volatile user data storage | board statistics
- 400 kHz | multi master | power loss control

Embedded BIOS Features
- AMI Aptio® UEFI 2.x firmware | 8 MByte serial SPI with congatec Embedded BIOS features OEM Logo | OEM CMOS Defaults | LCD Control
- Display Auto Detection | Backlight Control | Flash Update

Power Management
- ACPI 5.0 compliant | Smart Battery Management

Operating Systems
- Microsoft® Windows 10 IoT Enterprise | Microsoft® Windows 10 IoT Core | Microsoft® Windows 10 | Linux | Yocto

Power Consumption
- Typ. application 6W..12W

Temperature
- Commercial: Operating: 0 to +60°C | Storage: -20 to +70°C
- Industrial: Operating: -40 to +85°C | Storage: -40 to +85°C

Humidity
- Operating: 10 to 90% r. H. non cond. | 5 to 95% r. H. non cond.

Size
- 70 x 70 mm (2¾” x 2¾”)

www.congatec.com
**Intel Apollo Lake**

**PROCESSOR CORE**
- Tri-gate 3-D 14nm Quad core SoC
- 1MB L2 cache shared by 2 cores
- Core #1
- Core #2
- Core #3
- Core #4

**UNCORE UNIT**
- Intel® Gen9 LP
- HEVC
- H.264
- VP8
- MPEG2 WMV9
- M/JPEG
- DirectX 12.0
- OpenGL 4.3
- OpenGL ES 3.0

**DISPLAY & GRAPHICS @MEDIA**
- LPC Bus
- SPI
- eMMC/SD
- Audio UART
- SPI
- SD/SDIO
- PCIe to GBE
- Intel I210/1211
- NXP PTN3460
- Intel® Gen9 LP
- OpenCL 2.0
- OpenGL 4.3
- OpenGL ES 3.0
- AESSSE4.2

**INTEGRATED I/O**
- UART
- LPC Bus
- GPOx
- SPI
- MIPI CSI x4
- MIPI CSI x2
- LPC
- SPI
- CAN Bus
- SM Bus
- PCIe Bus
- PWR Control
- Fan Control

**Notes:**
1. PCIe 3 is available only for config x4 or no GbE
2. SATA 6Gbs/s
3. USB 3.0 SuperSpeed
4. USB 3.0 DualRole SuperSpeed
5. USB 2.0 DualRole
6. USB 2.0 Port
7. USB 3.0 Port
8. SATA Port 1-0
9. SD/SDIO
10. PCIe Port 2
11. PCIe Port 3
12. PCIe Port 1
13. PCIe Port 0

**Qseven 2.0 Connector**
- 230 Edge Finger

**LPC Bus**
- CAN Bus
- SPI Bus
- LPC Bus
- SM Bus
- PCIe Bus
- PWR Control
- Fan Control

**BIOS**
- Optional

**Onboard DDR3L Memory**
- DDR3L-1867

**Onboard DDR3L Memory**
- DDR3L-1867

**Integrated I/O Interfaces**
- DisplayPort
- HDMI/DVI
- eDP
- MIPI CSI x4
- MIPI CSI x2
- MIPI CSI2
- MIPI CSI x4
- MIPI CSI x2
- SPI
- PCIe to GBE
- Intel I210/1211
- NXP PTN3460
- Intel® Gen9 LP
- OpenCL 2.0
- OpenGL 4.3
- OpenGL ES 3.0
- AESSSE4.2

**Notes:**
- PCIe 3 is available only for config x4 or no GbE
- 2x SATA 6Gbs/s
- 4 bit SD v3
- 8x SATA KB/s
### Order Information

<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
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<tbody>
<tr>
<td>conga-QAS/E3950-8G eMMC32</td>
<td>015500</td>
<td>Qseven module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 8GB 1866MT/s DDR3L onboard memory and 32GB eMMC onboard flash</td>
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<tr>
<td>conga-QAS/E3940-4G eMMC16</td>
<td>015501</td>
<td>Qseven module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz, 2MB L2 cache, 4GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash</td>
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<tr>
<td>conga-QAS/E3930-2G eMMC8</td>
<td>015502</td>
<td>Qseven module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz, 2MB L2 cache, 2GB 1866MT/s DDR3L onboard memory and 8GB eMMC onboard flash</td>
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<tr>
<td>conga-QAS/E3950 4G eMMC32</td>
<td>015503</td>
<td>Qseven module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 4GB 1866MT/s DDR3L onboard memory and 32GB eMMC onboard flash</td>
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<tr>
<td>conga-QAS/i-E3950 4G eMMC16</td>
<td>015510</td>
<td>Qseven module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz, 2MB L2 cache, 8GB 1866MT/s DDR3L onboard memory and 32GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C</td>
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<tr>
<td>conga-QAS/i-E3940 4G eMMC16</td>
<td>015511</td>
<td>Qseven module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz, 2MB L2 cache, 4GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C</td>
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<tr>
<td>conga-QAS/i-E3930 2G eMMC8</td>
<td>015512</td>
<td>Qseven module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz, 2MB L2 cache, 2GB 1866MT/s DDR3L onboard memory and 8GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C. With eDP display output instead of LVDS</td>
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<tr>
<td>conga-QAS/N3350 4G eMMC16</td>
<td>015522</td>
<td>Qseven module with Intel® Celeron™ N3350 dual core processor with 1.1GHz core frequency up to 2.4GHz, 2MB L2 cache, 4GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash</td>
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<td>conga-QAS/N4200-8G eMMC32</td>
<td>015523</td>
<td>Qseven module with Intel® Pentium® N4200 quad core processor with 1.5GHz core frequency up to 2.50GHz, 2MB L2 cache, 8GB 1866MT/s DDR3L onboard memory and 32GB eMMC onboard flash</td>
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<tr>
<td>conga-QAS/J3455-4G eMMC16</td>
<td>015524</td>
<td>Qseven module with Intel® Celeron® J3455 quad core processor with 1.5GHz core frequency up to 2.30GHz, 2MB L2 cache, 4GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash</td>
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<td>conga-QAS/i-CSP-T</td>
<td>015530</td>
<td>Passive cooling solution for Qseven module conga-QAS with lidded Intel Atom processor. All standoffs are M2.5mm thread</td>
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<tr>
<td>conga-QAS/i-CSP-B</td>
<td>015531</td>
<td>Passive cooling solution for Qseven module conga-QAS with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole</td>
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<td>conga-QAS/i-HSP-T</td>
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<td>Standard heatspreader for Qseven module conga-QAS with lidded Intel Atom processor. All standoffs are M2.5mm thread</td>
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<td>conga-QAS/CSP-T</td>
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<td>Passive cooling solution for Qseven module conga-QAS with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread</td>
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<td>conga-QAS/CSP-B</td>
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<td>Passive cooling solution for Qseven module conga-QAS with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole</td>
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<td>conga-QAS/HSP-T</td>
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<td>Standard heatspreader for Qseven module conga-QAS with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread</td>
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<tr>
<td>conga-QAS/HSP-B</td>
<td>015537</td>
<td>Standard heatspreader for Qseven module conga-QAS with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole</td>
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### Accessories

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<tr>
<td>conga-QEVAL 2.0</td>
<td>007003</td>
<td>Evaluation platform for Qseven 2.0</td>
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</table>
| conga-QKIT | 077455 | Starterkit for Qseven including conga-QEVAL, conga-LDV/EPI, conga-FPA2, Dual DVI-D ADD2 Card, ATX power supply, ...
| conga-DP/HDMI 4k adapter | 500030 | The conga-DP/HDMI 4k adapter is used to convert the digital display interface (DDI) to the DisplayPort or HDMI connector interface |
| conga-Qseven/SBM3 | 025485 | Mobility Starter Kit |
| conga-MCB/Qseven Cable Kit | 14000041 | Complete cable kit for Qseven mini carrier board |
| Qseven MXM Connector Aces | 400018 | Socket for Qseven Carrier Boards. 10pcs package. ACES standard type, SMT, lead free, 230 positions, 0.50mm pitch, 7.8mm height. |
| conga-LDV/EPI | 011115 | LVDS to DVI converter board for digital flat panels with onboard EEPROM |

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