### POWERFUL AND SMALL

**conga-MA5**

- 5th Gen. Intel® Atom™ processor family
- COM Express Mini Type 10 module
- Intel 9th generation (Gen 9) LP graphics
- Up to 4k resolution (4096x2160@60Hz)
- 4K Codec Decode & Encode for HEVC, H.264, VP8

**Formfactor**

<table>
<thead>
<tr>
<th>Formfactor</th>
<th>COM Express® Mini</th>
<th>(55 x 84 mm)</th>
<th>Type 10</th>
</tr>
</thead>
</table>

**CPU**

<table>
<thead>
<tr>
<th>Processor Type</th>
<th>Frequency (Burst)</th>
<th>Clock</th>
<th>Core(s)</th>
<th>Cache</th>
<th>TDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Pentium® N4200</td>
<td>2.50 GHz</td>
<td>1.1 GHz</td>
<td>Quad</td>
<td>2MB</td>
<td>6W</td>
</tr>
<tr>
<td>Intel® Celeron® N3350</td>
<td>2.40 GHz</td>
<td>1.1 GHz</td>
<td>Dual</td>
<td>1MB</td>
<td>6W</td>
</tr>
<tr>
<td>Intel® Atom™ x7-E3950</td>
<td>2.00 GHz</td>
<td>1.6 GHz</td>
<td>Quad</td>
<td>2MB</td>
<td>12W</td>
</tr>
<tr>
<td>Intel® Atom™ x5-E3940</td>
<td>1.80 GHz</td>
<td>1.6 GHz</td>
<td>Quad</td>
<td>2MB</td>
<td>9W</td>
</tr>
<tr>
<td>Intel® Atom™ x5-E3930</td>
<td>1.80 GHz</td>
<td>1.3 GHz</td>
<td>Dual</td>
<td>1MB</td>
<td>6.5W</td>
</tr>
</tbody>
</table>

**DRAM**

- Dual channel onboard DDR3L memory support for up to 8 GByte at 1866MT/s

**Chipset**

Integrated in SoC

**Ethernet**

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

**I/O Interfaces**

- 4x PCIe Gen2
- 2x USB 3.0/2.0
- 6x USB 2.0
- 2x SATA3
- SDIO
- LPC Bus
- SMBus
- I2C Bus
- 2x UART

**Onboard storage**

- eMMC 5.0 interface up to 128GB

**Sound**

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

**Graphics**

- Intel® HD Graphics Gen 9
- PAVP 2.0
- H.265/HEVC
- VP9
- OpenGL 4.3
- OpenGL ES 3.0
- DirectX12
- HDCP1.4

**LVDS**

- 18/24-bit Single 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)

**Digital Display Interface**

- DisplayPort 1.2 up to 4096x2160@60Hz or HDMI 1.4b up to 1920x1080@60Hz

**congatec Board Controller**

- Multistage watchdog
- non volatile user data storage
- manufacturing and board information
- board statistics
- PC bus (fast mode)
- 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

**TPM**

- Infineon’s Trusted Platform Module (TPM 2.0/1.2)
- SLB 9655/9660 option

**Power Management**

- ACPI 5.0 compliant
- Smart Battery Management

**Operating Systems**

- Microsoft® Windows 10 Enterprise
- Microsoft® Windows 10 IoT Core
- Linux Yocto
- Android

**Power Consumption**

- Typ. application 6W...12W

**Temperature**

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

**Humidity**

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

**Size**

- 55 x 84 mm (2.17” x 3.31”)
## conga-MA5 | Order Information

<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
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<tbody>
<tr>
<td>conga-MA5/E3950-8G eMMC32</td>
<td>048000</td>
<td>COM Express Mini Type 10 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz 2MB L2 cache</td>
</tr>
<tr>
<td>conga-MA5/E3940-4G eMMC16</td>
<td>048001</td>
<td>COM Express Mini Type 10 module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz 2MB L2 cache</td>
</tr>
<tr>
<td>conga-MA5/E3930-2G eMMC16</td>
<td>048002</td>
<td>COM Express Mini Type 10 module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz 2MB L2 cache</td>
</tr>
<tr>
<td>conga-MA5/i/E3950-8G eMMC16</td>
<td>048010</td>
<td>COM Express Mini Type 10 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz 2MB L2 cache</td>
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<tr>
<td>conga-MA5/i/E3940-4G eMMC16</td>
<td>048011</td>
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<tr>
<td>conga-MA5/N4200-8G eMMC32</td>
<td>048020</td>
<td>COM Express Mini Type 10 module with Intel® Pentium® N4200 quad core processor with 1.1GHz core frequency up to 2.50GHz 2MB L2 cache</td>
</tr>
<tr>
<td>conga-MA5/N3350-4G eMMC16</td>
<td>048022</td>
<td>COM Express Mini Type 10 module with Intel® Celeron™ N3350 dual core processor with 1.1GHz core frequency up to 2.3GHz 2MB L2 cache</td>
</tr>
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### Coolings

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<tr>
<td>conga-MA5/i-CSP-T</td>
<td>048050</td>
<td>Passive cooling solution for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.</td>
</tr>
<tr>
<td>conga-MA5/i-CSP-B</td>
<td>048051</td>
<td>Passive cooling solution for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.</td>
</tr>
<tr>
<td>conga-MA5/i-HSP-T</td>
<td>048052</td>
<td>Standard heatspreader for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.</td>
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<td>conga-MA5/i-HSP-B</td>
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<td>conga-MA5/CSP-T</td>
<td>048054</td>
<td>Passive cooling solution for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.</td>
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<tr>
<td>conga-MA5/CSP-B</td>
<td>048055</td>
<td>Passive cooling solution for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.</td>
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<td>conga-MA5/HSP-T</td>
<td>048056</td>
<td>Standard heatspreader for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.</td>
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<tr>
<td>conga-MA5/HSP-B</td>
<td>048057</td>
<td>Standard heatspreader for COM Express Mini Type10 module conga-MA5 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-MEVAL</td>
<td>065400</td>
<td>Evaluation carrier board for Type 10 COM Express modules</td>
</tr>
<tr>
<td>conga-LDVI/EPI</td>
<td>011115</td>
<td>DVI to DVI converter board for digital flat panels with onboard EEPROM</td>
</tr>
<tr>
<td>COM-Express-carrier-board-Socket-5</td>
<td>400007</td>
<td>Connector for COM-Express carrier boards</td>
</tr>
<tr>
<td>COM-Express-carrier-board-Socket-8</td>
<td>400004</td>
<td>Connector for COM-Express carrier boards</td>
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