ULTRA LOW POWER NXP i.MX 8X SERIES
conga-QMX8-X

- NXP i.MX 8X processor series with ARM Cortex-A35 / M4F core complex
- Ultra low power architecture with 2-5W
- Highest reliability and improved virtualization
- Support for two independent HD displays
- Extended longevity up to 15 years
- Temperature range up to -40°C .. +85°C

Form factor
Qseven Rev. 2.1

CPU
NXP i.MX8-X ARM Processors

<table>
<thead>
<tr>
<th></th>
<th>ARM Cortex-A35</th>
<th>ARM Cortex-M4F</th>
<th>GPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>iMX 8QuadXPlus</td>
<td>4x</td>
<td>1x</td>
<td>1x GC7000Lite</td>
</tr>
<tr>
<td>iMX 8DualXPlus</td>
<td>2x</td>
<td>1x</td>
<td>1x GC7000Lite</td>
</tr>
</tbody>
</table>

DRAM
Up to 4 GByte onboard LPDDR4 memory | 2400 MT/s

Ethernet
1x Gbit Ethernet with IEEE 1588 support

I/O Interfaces
Up to 4x USB 2.0 (1x shared with USB OTG client) | 1x USB 3.0 | 1x SDIO 3.0 | 1x PCIe 3.0 | 1x I²C Bus | SPI | 2x UART (1x with Handshake, 1x on MFG pins) | 1x FlexCAN | GPIOs

Mass Storage
eMMC 5.1 up to 128 GByte

Sound
I2S | optional processor with HiFi 4 DSP

Graphics
Integrated in NXP i.MX 8X Series GC7000Lite multimedia GPU
VPU up to 4K h.265 dec / 1080p h.264 enc/dec | 3D Graphics with up to 4 high performance vec4 shaders and 16 execution units | up to 2 independent displays | OpenGL ES 3.1 | Vulcan VX extensions | OpenCL 1.2 EP | OpenVG 1.1

Video Interfaces
1x dual channel or 2x single channel LVDS 24 bit | opt. HDMI 1.3 through bridge (shared with 2nd LVDS channel) | 2x MIPI-DSI with 4-lanes shared with LVDS | 1x MIPI-CSI2 4-lanes

Features
Watchdog Timer | I²C bus 400 kHz | Cortex-A35 Console | optional JTAG debug interface | High Precision Real Time Clock

Virtualization
Hardware Virtualization with Domain Separation | Multiple Operating System Support

Security
High Assurance Boot support, SHE | Inline Encryption Engine (AES-128) | TRNG, AES-128, AES-256, 3DES, ARC4, RSA4096, SHA-1, SHA-2, SHA-256, MD-5 | RSA-1024, 2048, 3072, 4096 and secure key storage

Boot Loader
U-Boot

Operating Systems
Linux | Yocto Linux | Android

Power Consumption
Ultra Low Power Cortex A-35 | Typ. application 2-5W @ 5V

Temperature Range
Operating Temperature Range: 0 to +60°C commercial grade
Storage Temperature Range: -40 to +85°C industrial grade

Humidity
Operating: 10 - 90% r. H. non condensing | Storage: 5 - 95% r. H. non condensing

Size
70 x 70 mm (23/4" x 23/4")

www.congatec.com
<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>conga-QMX8-X/QXP-4G eMMC16</td>
<td>016500</td>
<td>Qseven module with ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/DXP-2G eMMC16</td>
<td>016501</td>
<td>Qseven module with ultra low power NXP i.MX 8DualXPlus processor with 2x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/QXP-2G eMMC16</td>
<td>016503</td>
<td>Qseven module with ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/QXP-4G eMMC16/HDMI</td>
<td>016504</td>
<td>Qseven module with ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Features HDMI bridge. Commercial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-QXP-4G eMMC16</td>
<td>016510</td>
<td>Qseven module with ultra low power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-DXP-2G eMMC16</td>
<td>016511</td>
<td>Qseven module with ultra low power NXP i.MX 8DualXPlus processor with 2x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-QXP-2G eMMC16</td>
<td>016513</td>
<td>Qseven module with ultra low-power NXP i.MX 8QuadXPlus processor with 4x ARM Cortex-A35 and 1x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Industrial temperature range.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-CSP-B</td>
<td>016550</td>
<td>Passive cooling solution for Qseven module conga-QMX8-X with lidded NXP i.MX 8X ARM processor. All standoffs are with 2.7mm bore hole.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-CSP-T</td>
<td>016551</td>
<td>Passive cooling solution for Qseven module conga-QMX8-X with lidded NXP i.MX 8X ARM processor. All standoffs are with M2.5mm thread.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-HSP-B</td>
<td>016552</td>
<td>Heat spreader solution for Qseven module conga-QMX8-X with lidded NXP i.MX 8X ARM processor. All standoffs are with 2.7mm bore hole.</td>
</tr>
<tr>
<td>conga-QMX8-X/i-HSP-T</td>
<td>016553</td>
<td>Heat spreader solution for Qseven module conga-QMX8-X with lidded NXP i.MX 8X ARM processor. All standoffs are with M2.5mm thread.</td>
</tr>
<tr>
<td>conga-QEVAL/Qseven 2.0 ARM</td>
<td>007005</td>
<td>Evaluation carrier board for Qseven ARM modules.</td>
</tr>
</tbody>
</table>