# HIGH Performance NXP i.MX 8 Series

**conga-QMX8**

- NXP i.MX 8 processor series with ARM Cortex-A72 / A53 / M4F core complex
- Advanced Performance and Virtualization
- Graphics up to 4k display resolution
- Vision extensions and dual MIPI camera support
- Extended longevity up to 15 years
- Temperature range up to -40°C ...+85°C

## Form Factor
- Qseven Rev. 2.1

## CPU
- **NXP i.MX 8 ARM Processors**
  - **ARM Cortex-A72**
    - i.MX 8QuadMax: 2x
    - i.MX 8QuadPlus: 2x
  - **ARM Cortex-A53**
    - i.MX 8QuadMax: 4x
    - i.MX 8QuadPlus: 4x
  - **ARM Cortex-M4F**
    - i.MX 8QuadMax: 2x
    - i.MX 8QuadPlus: 2x
  - **GPU**
    - 2x GC7000 XSVX
    - 2x GC7000 XSVX

## DRAM
- Up to 8 GByte onboard LPDDR4 memory | 3200 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) | up to 1x USB 3.0 | 1x SDIO 3.0 | 1x SATA 6 Gbit/s | 2x PCIe 3.0 | 1x Bus | SPI | 2x UART (1x with Handshake, 1x shared with MFG pins) | 1x CAN FD | GPIOs

## Mass Storage
- eMMC 5.1 up to 128 Gbyte | onboard microSD 3.0 card socket

## Audio
- 1x I²S | optional processors with HiFi 4 DSP for advanced echo cancellation and speech recognition

## Graphics
- Integrated NXP i.MX 8 Series dual core GC7000 XSVX multimedia GPU
- VPU up to h.264 decode (4Kp30) and H.264 encode (1080p30) | 3D Graphics with up to 16 Vec4 shaders and 64 EUs | Split-GPU architecture | up to 3 independent displays | OpenGL ES 3.2 | Vulkan | OpenVG 1.1 | OpenCL 1.2 EP | OpenVG 1.1

## Video Interfaces
- 1x HDMI 2.0a with HDCP 2.2 | 1x dual channel LVDS 24 bit | DP 1.3 (shared with HDMI) | 2x MIPI-CSI 4-lane through flat-foil connector | optional 1x MIPI-DSI shared with MIPI-CSI

## Features
- Watchdog Timer | I²C bus 400 kHz | Cortex-A3S Console | optional JTAG debug interface | High Precision Real Time Clock

## Virtualization
- Multiple Domain Hardware Virtualization | Multiple Operating System support | System MMU | Resource partitioning and split GPU

## 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
- Typ. application 5-15W @ 5V

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

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

## Size
- 70 x 70 mm (2¾" x 2¼")
<table>
<thead>
<tr>
<th>Article</th>
<th>PN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>conga-QMX8/QCM-4GB eMMC16</td>
<td>016400</td>
<td>Qseven module with high performance NXP i.MX 8Quad Max processor with 2x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
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<tr>
<td>conga-QMX8/QCP-4GB eMMC16</td>
<td>016401</td>
<td>Qseven module with high performance NXP i.MX 8Quad Plus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
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<tr>
<td>conga-QMX8/QCP-2GB eMMC16</td>
<td>016403</td>
<td>Qseven module with high performance NXP i.MX 8QuadPlus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
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<tr>
<td>conga-QMX8/QCM-4GB eMMC16</td>
<td>016421</td>
<td>Qseven module with high performance NXP i.MX 8Quad Max processor with 2x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 4GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
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<td>conga-QMX8/QCP-2GB eMMC16</td>
<td>016424</td>
<td>Qseven module with high performance NXP i.MX 8QuadPlus processor with 1x ARM Cortex-A72, 4x ARM Cortex-A53 and 2x ARM Cortex-M4F, 2GB onboard LPDDR4 memory and 16GB onboard eMMC. Commercial temperature range.</td>
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<td>conga-QMX8/CSP-B</td>
<td>016450</td>
<td>Passive cooling solution for Qseven module conga-QMX8 with lidded NXP i.MX8 ARM processor. All standoffs are with 2.7mm bore hole.</td>
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<tr>
<td>conga-QMX8/CSP-T</td>
<td>016451</td>
<td>Passive cooling solution for Qseven module conga-QMX8 with lidded NXP i.MX8 ARM processor. All standoffs are with 2.7mm bore hole.</td>
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<tr>
<td>conga-QMX8/HSP-B</td>
<td>016452</td>
<td>Standard heat spreader for Qseven module conga-QMX8 with lidded NXP i.MX8 ARM processor. All standoffs are with 2.7mm bore hole.</td>
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<tr>
<td>conga-QMX8/HSP-T</td>
<td>016453</td>
<td>Standard heat spreader for Qseven module conga-QMX8 with lidded NXP i.MX8 ARM processor. All standoffs are M2.5mm thread.</td>
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<tr>
<td>conga-QEVAL/Qseven 2.0 ARM</td>
<td>007005</td>
<td>Evaluation carrier board for Qseven ARM modules.</td>
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<tr>
<td>conga-HDMI adapter full-HD</td>
<td>500025</td>
<td>HDMI adapter card with support for full-HD resolution for Qseven ARM evaluation carrier board. Suitable for ARM Qseven modules on conga-QEVAL 2.0 ARM.</td>
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<td>Cab-RS232-Debug-ARM</td>
<td>48000023</td>
<td>RS232 adapter cable for conga-QMX6 module console connection.</td>
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