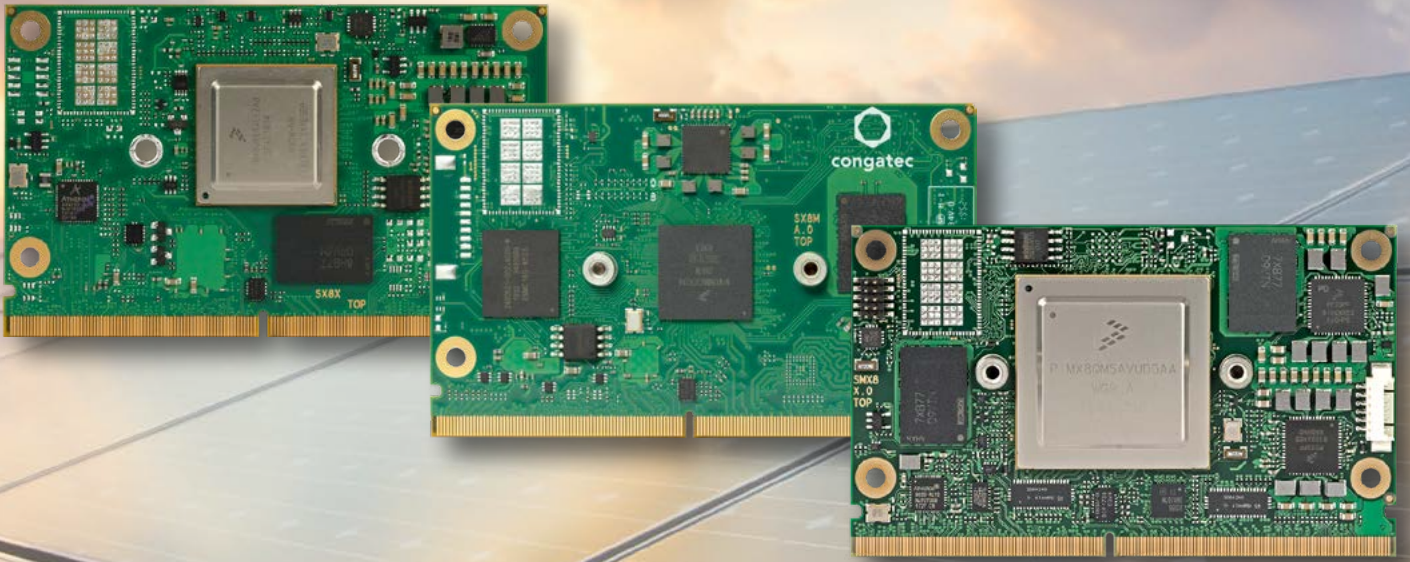




congatec



Highlights folder
congatec NXP products



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congatec NXP products

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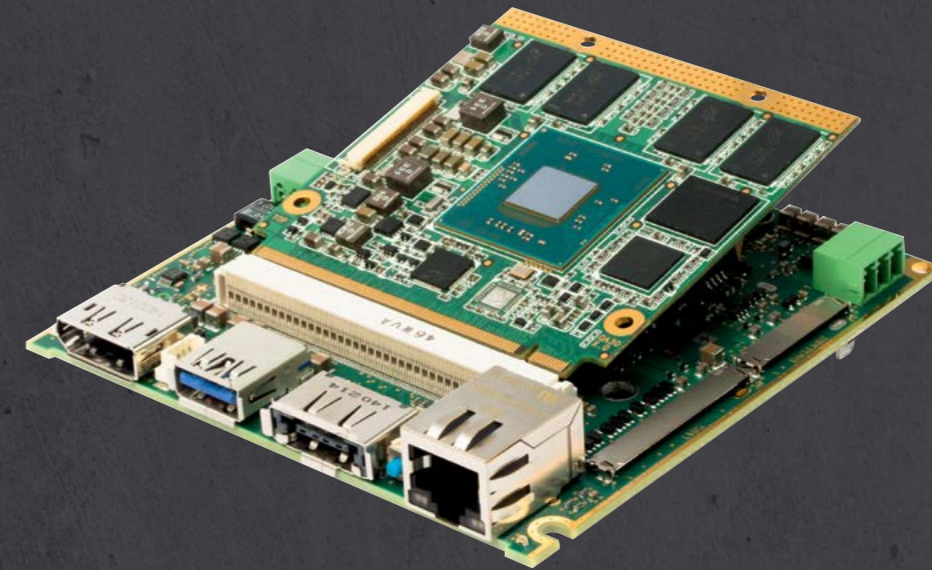
Design Services

Technical Services

Further Information

Computer-On-Modules

concept & advantages



Concept

- CPU module with standard PC core functions -
- Carrier board with customer specific function&size -
- Logical alternative to a chip-down design effort -

Lower Costs

- COMs save money. The cost of the development and end product are dramatically reduced when compared with a full custom design. This holds true for the product's entire life-cycle. COMs provide cost advantages from the start.
- Lower engineering cost -
 - Lower product cost -
 - Lower cost of life cycle management -

Improved Flexibility

- COMs are flexible and can meet all performance requirements. The modules support a wide range of performance levels starting from NXP i.MX6 up to the Intel Xeon processor, as well as future architectures. The COM standards are well established and are already prepared for the future.

Benefits

- Faster time to market
- Reduced development costs
- Scalable product range
- Allows customer focus on system features
- Faster reaction to market trends
- Second source philosophy
- Minimize inventory cost

Reduced Risk

- COMs minimize risk. Basic changes during the design phase, or in the middle of a product's life cycle, are easily managed. Simply plug in the next-generation COM module and continue. COMs allow for easy upgrades.
- Lower design risk
 - Lower transition risk

Time-To-Market Advantage

- COMs put you in a leading position. The use of customized carrier boards reduces necessary engineering effort by separating your design work from the embedded PC technology. Focus on your own core competency.
- Faster time to market
 - Faster engineering
 - Faster reaction time to market changes
 - Scalability
 - Easy performance and technology upgrades

congatec NXP products

SMARC 2.1 based on NXP i.MX 8M MINI

conga-SMX8-Mini



- SMARC 2.1 Module based on NXP i.MX 8M Mini
- Scalable ARM Performance with up to 4x 1.8GHz Cortex-A53 and 1x Cortex-M4F
- Highly improved power efficiency and performance by 14LPC FinFET process technology
- 3D Graphics with Full HD resolution, MIPI CSI-2
- Extended longevity up to 15 years

Form factor	SMARC Specification 2.1 82x50 mm ²		
CPU	NXP i.MX 8M Mini ARM Processor Cores		
	Commercial	ARM Cortex-A53	ARM Cortex-M4F
	i.MX 8M Mini Quad	4 x 1.8GHz	1x 400MHz
	i.MX 8M Mini Dual	2 x 1.8GHz	1x 400MHz
	i.MX 8M Mini Solo	1 x 1.8GHz	1x 400MHz
	Industrial		
	i.MX 8M Mini Quad	4 x 1.6GHz	1x 400MHz
	i.MX 8M Mini Dual	2 x 1.6GHz	1x 400MHz
	i.MX 8M Mini Solo	1 x 1.6GHz	1x 400MHz
	GPU		
			1x GC NanoUltra 3D Graphics
			1x GC NanoUltra 3D Graphics
			1x GC NanoUltra 3D Graphics
DRAM	Up to 4 GByte onboard LPDDR4 memory 3000 MT/s		
Ethernet	1x Gigabit Ethernet with IEEE 1588v2 support		
I/O Interfaces	Up to 5x USB 2.0 (shared with 1x USB OTG client) 1x PCIe 2.0 1x SDIO 3.0 2x I ² C Bus 1x SPI up to 3x UART (2x with handshake) GPIOs 1x MIPI-CSI2 (2-lanes) or (4-lanes) optional M.2 1216 WiFi/BT module		
Storage	eMMC 5.1 up to 128 GByte		
Sound	2x I ² S		
Graphics	Integrated in NXP i.MX 8M Mini Series GC NanoUltra 3D GPU one display VPU with up to 1080p video decoding (H.265, H.264, VP8/9) up to 1080p video encoding (H.264, VP8) 3D Graphics GPU with one shader core up to 6.4GFlops GC320 2D Graphics GPU OpenGL ES 2.0 OpenVG 1.1		
Display Interfaces	1x dual channel 24bit LVDS through bridge (default) or MIPI-DSI 4-lanes or DisplayPort through bridge		
Embedded Features	Watchdog Timer I ² C bus Cortex-A53 console optional JTAG debug interface high precision Real Time Clock		
Security	High Assurance Boot support TrustZone AES-256, RSA-4096, SHA-256, 3DES, DES, ARC4, MD-5 eFuse Key Storage Secure Real Time Clock (RTC) True Random Number Generator (RNG) 32 KB Secure RAM SJTAG		
Boot Loader	U-Boot boot loader		
Operating Systems	Linux Yocto Android		
Power Consumption	See user's guide for full details		
Temperature	Industrial Variants:	Operating Temperature: -40 to +85°C	Storage Temperature: -40 to +85°C
	Commercial Variants:	Operating Temperature: 0 to +60°C	Storage Temperature: -40 to +85°C
Humidity	Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.		
Size	82 x 50 mm (~3,23" x 1,97")		

HIGH Performance NXP i.MX 8 Series

conga-SMX8



- 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	SMARC Specification 2.1				
CPU	NXP i.MX 8 ARM Processors				
		ARM Cortex-A72	ARM Cortex-A53	ARM Cortex-M4F	GPU
	i.MX 8QuadMax	2x	4x	2x	2x GC7000 XSVX
	i.MX 8QuadPlus	1x	4x	2x	2x GC7000 XSVX
DRAM	Up to 8 GByte onboard LPDDR4 memory 3200 MT/s				
Ethernet	2x Gbit Ethernet with IEEE 1588 support				
I/O Interfaces	Up to 5x USB 2.0 (1x shared with USB OTG client) up to 2x USB 3.0 1x SATA 6 Gb/s 1x SDIO 3.0 up to 2x PCIe 3.0 I ² C Bus SPI QSPI 4x UART (2x with Handshake) 2x CAN FD GPIOs optional soldered M.2 1216 WiFi/BT				
Mass Storage	eMMC 5.1 up to 128 Gbyte onboard microSD 3.0 card socket				
Sound	2x I ² S 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 OpenVX 1.1 OpenCL 1.2 EP OpenVG 1.1				
Video Interfaces	1x HDMI 2.0a with HDCP 2.2 (optional eDP 1.4 or DP 1.3) 1x DP 1.3 (through MIPI-DSI bridge) 1x dual channel LVDS 24 bit optional 1x MIPI-DSI with 4-lanes (shared with LVDS ch1) 1x MIPI-CSI 4-lane and 1x MIPI-CSI 2-lane				
Features	Watchdog Timer I ² C bus 400 kHz Cortex-A35 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	82 x 50 mm (3,23" x 1,97")				

ULTRA LOW POWER NXP i.MX 8X SERIES

conga-SMX8-X

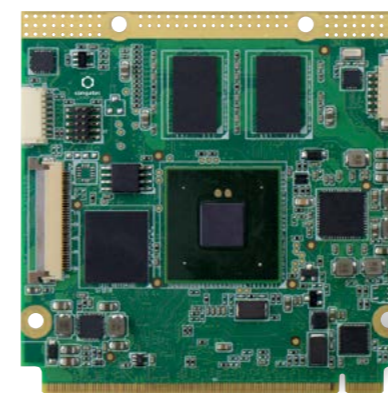


- NXP i.MX 8X processor series with ARM Cortex-A35 / M4F core complex
- Ultra low power architecture with 2-5W
- Highest reliability and improved virtualization
- Support for up to 2 independent HD displays
- Extended longevity up to 15 years
- Temperature range up to -40°C .. +85°C

Form factor	SMARC Specification 2.1		
CPU	NXP i.MX 8X ARM Processor Cores		
	ARM Cortex-A35	ARM Cortex-M4F	GPU
	i.MX 8QuadXPlus 4x	1x	1x GC7000Lite
	i.MX 8DualXPlus 2x	1x	1x GC7000Lite
DRAM	Up to 4 GByte onboard LPDDR4 memory 2400 MT/s		
Ethernet	Up to 2x Gbit Ethernet with IEEE 1588 support		
I/O Interfaces	Up to 5x USB 2.0 (1x shared with USB OTG client) up to 2x USB 3.0 1x SDIO 3.0 1x PCIe 3.0 I ² C Bus 1x SPI 1x QSPI up to 4x UART (2x with Handshake (1x shared with FlexCAN)) 2x FlexCAN GPIOs optional soldered M.2 1216 WiFi/BT		
Mass Storage	eMMC 5.1 up to 128 GByte		
Sound	Up to 2x I ² S optional processor with Tensilica® HiFi 4 DSP		
Graphics	Integrated in NXP i.MX 8X Series GT7000Lite 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 Vulkan VX extensions OpenCL 1.2 EP OpenVG 1.1		
Video Interfaces	1x dual channel or 2x single channel LVDS 24 bit optional HDMI 1.3 through bridge (shared with second LVDS channel) 2x MIPI-DSI with 4-lanes shared with LVDS 1x MIPI-CSI 4-lanes		
Features	Watchdog Timer I ² C 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 boot loader		
Operating Systems	Linux Yocto Linux Android		
Power Consumption	Ultra low power Cortex-A35 typ. application 2-5W @ 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 cond.	Storage: 5 - 95% r. H. non cond.	
Size	82 x 50 mm (3,23" x 1,97")		

LOW POWER CONSUMPTION

conga-QMX6



- Up to NXP i.MX6 Quad ARM Cortex A9
- Multimedia Performance with HDMI & LVDS
- Camera Interface MIPI CSI-2 on flat foil connector
- Extended longevity, min. 10 years
- Temperature range up to -40°C .. +85°C

Formfactor	Qseven Rev. 2.0 70x70 mm		
CPU	NXP i.MX6 ARM Processors		
	NXP i.MX6 Solo ARM Cortex A9	up to 1.0 GHz*	L2 cache 512kB
	NXP i.MX6 Dual Lite ARM Cortex A9	up to 1.0 GHz*	L2 cache 512kB
	NXP i.MX6 Dual ARM Cortex A9	up to 1.0 GHz*	L2 cache 1MB
	NXP i.MX6 Quad ARM Cortex A9	up to 1.0 GHz*	L2 cache 1MB
	* Core Frequency: 1.0 GHz for commercial grade 800 MHz for industrial grade		
DRAM	Up to 2 GByte onboard DDR3 memory 1066 MT/s		
Ethernet	1x 1 Gbit Ethernet		
I/O Interfaces	5x USB 2.0 (shared with 1x USB OTG client) 1x SATA II (optional) 1x SDIO 1x PCIe 2.0 I ² C Bus CAN Bus SPI		
Mass Storage	Onboard Solid State Drive (eMMC) up to 16 GByte (optional) Onboard MicroSD socket		
Sound	I ² S		
Graphics	Integrated in NXP i.MX6 Series Video (VPU) 2D Graphics (GPU2D) and 3D Graphics (GPU3D) 3D graphics with 4 shaders up to 200MT/s dual stream 1080p/720p decoder/encoder. OpenGL OpenCL and OpenVG 1.1		
Video Interfaces	HDMI v1.4 support supported by Qseven specification. 2x LVDS (2x 24 bit) 1x LVDS (1x 24 bit) up to WUXGA resolution 1920x1200 pixel and HD1080. Supports 18bit and 24bit dual channel up to WUXGA 1920x1200.		
Features	Watchdog Timer I ² C bus (fast mode) 400 kHz multi-master JTAG debug interface CAN interface Camera Interface MIPI CSI-2 on flat foil connector High Precision Real Time Clock		
Embedded BIOS Features	U-Boot boot loader		
Operating Systems	Android Windows Embedded Compact 7 Linux BSPs with OS drivers and tools		
Power Consumption	Typ. application ~3-5 Watt @ 5V		
Temperature	Operating:	0 to +60°C commercial grade -40 to +85°C industrial grade	
	Storage:	-40 to +85°C	
Humidity	Operating:	10 to 90% r. H. non cond.	
	Storage:	5 to 95% r. H. non cond.	
Size	70 x 70 mm (2¾" x 2¾")		

NXP i.MX 8M Plus for Industry 4.0 & AI

conga-QMX8-Plus



- NXP i.MX 8M Plus 14nm processor series with ARM 4-Core Cortex-A53 / M7 + NPU
- Enhanced AI, Machine Learning and Vision capabilities featuring NPU and integrated camera ISP's
- Ultra low power architecture with 2-5W
- Extended longevity up to 15 years
- Temperature range up to -40°C .. +85°C

Form factor	Qseven Specification 2.1				
CPU SoC	NXP i.MX 8M Plus Processor Cores				
		ARM Cortex-A53	ARM Cortex-M7	NPU	GPU
	i.MX 8M Plus Quad (consumer)	4x @ 1.8 GHz 64bit	1x @ 800MHz	1x up to 2.3 TOPS	GC7000UL/GC520L
	i.MX 8M Plus Quad (industrial)	4x @ 1.6 GHz 64bit	1x @ 800MHz	1x up to 2.3 TOPS	GC7000UL/GC520L
DRAM	Up to 6 GByte onboard LPDDR4 memory 4000 MT/s inline ECC				
AI & Machine Learning	Neural Processing Unit (NPU) with up to 2.3 TOPS NXP eIQ ML SW tools and libraries				
Ethernet	1x Gbit Ethernet with IEEE 1588 and TSN Support				
I/O Interfaces	1x dual-role USB 3.0 3x USB 2.0 1x USB 3.0 1x SDIO 3.0 1x onboard µSD card socket 1x PCIe 3.0 2x I ² C 1x SPI 1x UART with Handshake 1x CAN FD 12x GPIOs				
Mass Storage	eMMC 5.1 up to 128 GByte SPI NOR Flash up to 64MByte				
Sound	1x I ² S HiFi 4 DSP				
Graphics	Integrated in SoC GC7000UL 3D graphics with 2 high performance vec4 shaders GC520L 2D graphics VPU up to 1080p60 H.265/H.264 decoding and encoding OpenGL ES 3.1 Vulkan OpenCL 1.2 FP OpenVG 1.1 2 independent displays				
Video Interfaces	1x dual channel 24-bit LVDS 1x HDMI 2.0a 1x MIPI-DSI 4-lane shared with second LVDS channel 2x MIPI-CSI 4-lane onboard connectors 2x integrated Image Signal Processor (ISP) for cameras with up to 12 MP resolution				
Features	Watchdog Timer Cortex-A53 Console optional JTAG debug interface High Precision Real Time Clock				
Security	Cryptographic Acceleration and Assurance Module (CAAM) Resource Domain Controller ARM®TrustZone® High Assurance Boot support SHE, Encryption Engine AES-128, AES-256, 3DES, RC4, RSA4096, TRNG SHA-1, SHA-2, SHA-256, MD-5 RSA-1024, 2048, 3072, 4096 and secure key storage side channel attack resistance				
Boot Loader	U-Boot boot loader				
Operating Systems	Linux, Yocto Project Android				
Power Consumption	Typical application 2-5W @ 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 cond.	Storage: 5 - 95% r. H. non cond.			
Size	70mm x 70 mm				

NXP i.MX 8M Plus for Industry 4.0 & Beyond

conga-SMX8-Plus



- NXP i.MX 8M Plus 14nm processor series with ARM 4-Core Cortex-A53 / M7 + NPU
- Enhanced AI, Machine Learning and Vision capabilities featuring NPU and integrated camera ISP's
- Ultra low power architecture with 2-6W
- Support for up to 3 independent displays
- Extended longevity up to 15 years
- Temperature range up to -40°C .. +85°C

Form factor	SMARC Specification 2.1				
CPU SoC	NXP i.MX 8M Plus Processor Cores				
		ARM Cortex-A53	ARM Cortex-M7	NPU	GPU
	i.MX 8M Plus Quad (consumer)	4x @ 1.8 GHz 64bit	1x @ 800MHz	1x 2.3 TOPS	GC7000UL/GC520L
	i.MX 8M Plus Quad (industrial)	4x @ 1.6 GHz 64bit	1x @ 800MHz	1x 2.3 TOPS	GC7000UL/GC520L
DRAM	Up to 6 GByte onboard LPDDR4 memory 4000 MT/s inline ECC				
Ethernet	2x Gbit Ethernet with IEEE 1588 Support (1x with TSN support)				
I/O Interfaces	1x dual-role USB 2.0 2x USB 2.0 2x USB 3.0 1x SDIO 3.0 1x PCIe 3.0 2x I ² C 1x SPI 4x UART (2x with Handshake) 2x CAN FD 14x GPIO optional soldered M.2 1216 WiFi/BT				
Mass Storage	eMMC 5.1 up to 128 GByte				
Sound	2x I ² S HiFi 4 DSP				
Graphics	Integrated in SoC GC7000UL 3D graphics with 2 high performance vec4 shaders GC520L 2D graphics VPU up to 1080p60 H.265/H.264 decoding and encoding OpenGL ES 3.1 Vulkan VX extensions OpenCL 1.2 FP OpenVG 1.1 Up to 3 independent displays				
Video Interfaces	1x dual channel 24 bit LVDS 1x HDMI 2.0a 1x MIPI-DSI 4-lane shared with second LVDS channel 2x MIPI-CSI 4-lanes 2x integrated Image Signal Processor (ISP) for cameras with up to 12 MP resolution				
Features	Watchdog Timer Cortex-A53 Console optional JTAG debug interface High Precision Real Time Clock				
AI & Machine Learning	Neural Processing Unit (NPU) with up to 2.3 TOPS NXP eIQ ML SW tools and libraries				
Security	Cryptographic Acceleration and Assurance Module Resource Domain Controller ARM®TrustZone® High Assurance Boot support SHE, Encryption Engine AES-128, AES-256, 3DES, RC4, RSA4096, TRNG SHA-1, SHA-2, SHA-256, MD-5 RSA-1024, 2048, 3072, 4096 and secure key storage side channel attack resistance				
Boot Loader	U-Boot boot loader				
Operating Systems	Linux, Yocto Project Android				
Power Consumption	Low power Cortex-A53 typ. application 2-6W @ 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 cond.	Storage: 5 - 95% r. H. non cond.			
Size	82 x 50 mm (3,23" x 1,97")				

Evaluation Carrier

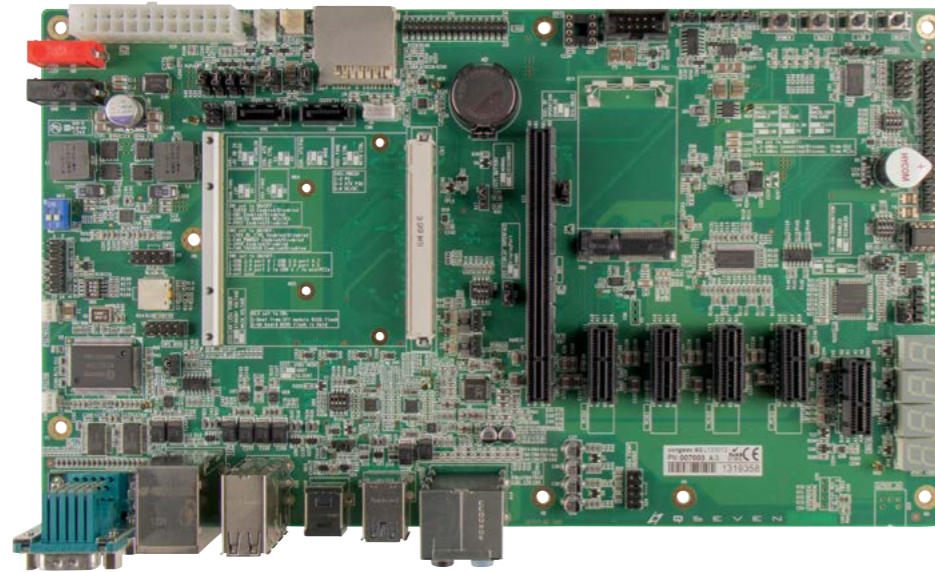
the base design for your own carrier board

Evaluation Carrier Boards

congatec provides evaluation carrier boards for all supported Computer-On-Module standards. This allows for a quick start of new designs. These carrier boards route all the COM signals to standard interface connectors.

Documentation

The schematics and board data of the evaluation carrier boards are freely available and can be used as a blue print to create own customized designs.



conga-QEVAL

Evaluation carrier board for Qseven modules.

Application Carrier Boards

the easiest way to implement Computer-On-Modules

Documentation

The schematics and board data of the Application Carrier Boards are available for customers on request and can be used as a blue print to create own customized designs.

Application Carrier Boards

come in size-optimized form factors with a special focus on the most common I/Os. These off-the-shelf Carrier Boards serve as platforms for rapid customization and for small or medium sized projects. congatec Application Carrier Boards reduce the time-to-market significantly.



conga-MCB/Qseven

Small size (95x140mm) carrier board to support all x86 based Qseven modules.



conga-SMC1/SMARC-x86

Carrier Board for x86 based SMARC 2.0 modules.



conga-STX7/Carrier

Evaluation mini-STX carrier board for COM Express Type 7 modules.



conga-MCB/ARM

Small size (95x140mm) carrier board to support all ARM based Qseven modules.



conga-SMC1/SMARC-ARM

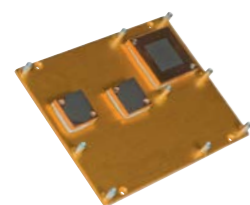
Carrier Board for ARM based SMARC 2.0 modules.

COM Cooling Solutions

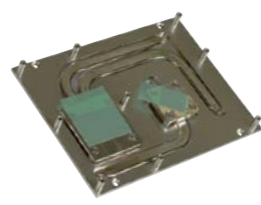
Cooling solutions for COM Express

The specifications for Qseven, COM Express and SMARC include heatspreader definitions, the mechanical thermal interface. All the heat generated by power consuming components such as chipsets and processors is transferred to the system's cooling via the heatspreader. This can be achieved by either a thermal connection to the casing, a heat pipe or a heat sink.

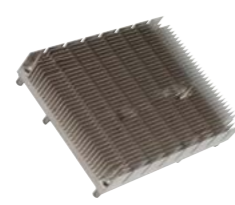
Heatspreader



Heatpipe
Heatspreader



Passive cooling
solution



Active cooling
solution



Heatpipe
Adapter



congatec's smart cooling pipes pave the way for unlimited performance growth for COM Express modules

High Performance Cooling

The congatec heatspreaders and cooling solutions for the high performance modules are feature heatpipes in order to boost performance and reliability. A copper block is mounted on the chip to absorb heat and to mitigate the effects of thermal peaks. Between the chip and the copper block, a phase-change material is placed to improve the heat transmission. To account for different component heights and manufacturing tolerances, the copper block is spring loaded to apply an optimized pressure to the silicon die. The copper block and the cooling fins or heat plate are connected by flexible flat heatpipes.

The heat pipe is attached directly to the cooling blocks on the chip and the heatspreader plate. As a result, more heat is transported from the processor environment to the heatspreader, hot spots are cooled more quickly and therefore the processor is optimally cooled.

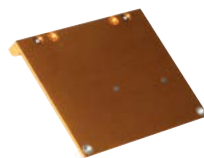
The heatpipe adapter uses the same principals as described above but transmits the heat from the module directly to standard heat pipes with 8mm diameter. This approach allows for cost optimized, ultra-flat system solutions i.e. 1 U rack units.



High performance active cooling solution
for server class COM Express Type 7 modules

Cooling solutions for Qseven and SMARC

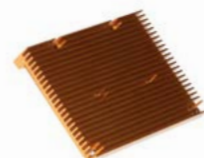
Heatspreader
outer side



Heatspreader
inner side



Cooling Solution
with fins



Starter Kits

all tools in a box to start
your rapid development



conga-QKit

This complete kit provides the ability to start evaluating Qseven® modules immediately. Available for ARM (with conga-QMX6) and x86 (with conga-QA5).



conga-SKit

This complete kit provides the ability to start evaluating SMARC modules immediately. Available for ARM (with conga-SMX8) and x86 (with conga-SA5).



conga-MIPI/Skit-ARM

This complete kit provides the ability to connect Basler MIPI cameras to the NXP i.MX8 based SMARC 2.0 module conga-SMX8.

congatec Design Services

for customized designs

Existing know-how and infrastructure make it possible for customers to outsource custom designs to congatec. As a single supplier covering the complete range of cost-effective standard solutions to individual customized projects, congatec supports the full range of technology platforms – from x86 to ARM and from standard form factors i.e. COM Express or Pico-ITX to full customized board designs. For customized projects congatec acts as a service provider supporting the specific system designs of customers.



congatec's Customizing Services

congatec's embedded customizing support starts at the design phase and includes project management, the development of specific hardware and software, production control, system integration and global logistics, as well as the provision of technical support.

Customization

of Single Board Computers
of Computer-On-Modules

Design

of Carrier Boards
of Full Custom Hardware
of Cooling Solutions
of Mechanics

Modification

Special BIOS/UEFI/Firmware features or settings

System Integration

including Tests and Certifications

Manufacturing

Efficient High Quality Production Services



congatec as Outsourcing Partner

Overview

Mutually define system requirements
Create product concept
Provide detailed design including supply chain
Turnkey delivery for the complete product life cycle

Benefits

Leverages congatec embedded computing expertise
Improves time to market and reduces development cost
Simplifies customers supply chain
congatec manages the entire product life cycle
Intellectual property remains with the customer



congatec supports customer developments throughout the entire product life cycles. Customers benefit from congatec's rich experience as a manufacturer of high quality computer modules with synergistic effects leading to reduced development time and cost.

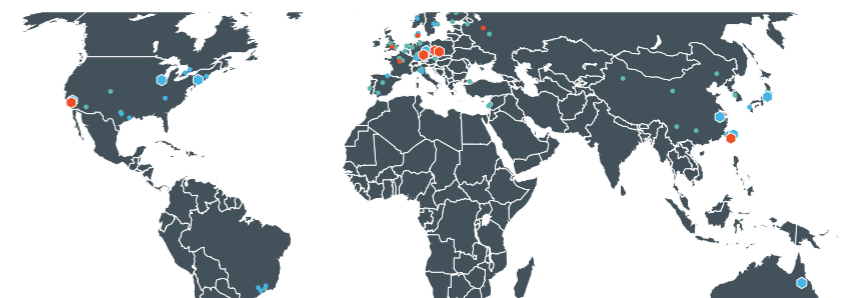
congatec Technical Services

for customized designs



Worldwide Coverage

Engineering and support for standard and customized products in all major regions



Services for the Project Definition Phase

Product Selection Support

SBC, COM or full custom design? Forward looking I/O selection, ...

Design-In Training

Engineering trainings covering all aspects fo carrier board designs



Services for the Design Phase

Design Guides

In depth best practice solutions

Reference Schematics

High level starting point for own designs

Component Selection

Support to find the right functionality, costs, availability, ...

Signal Integrity Simulation

High speed simulation allows layout adjustments before the first prototypes are produced

Schematic Review

Check the design to recognize problems at an early stage

Layout Review

Detailed check and best practice advice from our specialists

BIOS/UEFI/Firmware Customization

Implementation of customized features or settings

Bring-Up Support

congatec engineering support to bring life to the first prototypes quickly



Services for the Validation Phase

Compliance Measurements

Measurement of the signal integrity up to 36 GHz for Rx and Tx signal path

Thermal Solutions

Optimized cooling solutions featuring heat stacks, heat pipes or vapor chambers

Customized Article Handling

Handling of manufacturing and logistics requirements

Support for EMC Measurements

Engineering support to optimize the designs to EMC requirements

MTBF

Reliability calculations based on different standards i.e. Telcordia 3, SN 29500, IEC 61709, ...



Information Sources

Users Guides

Accurate and detailed product related information

Application & Tech Notes

Specific solutions described in detail i.e. benchmarks, power consumption measurements for different CPUs use cases, and details about the enhanced congatec BIOS features

Design Guides

Deep technical "how to" for carrier boards, battery managers, and more

Reference Schematics

Schematics and layout files to be used as a blueprint for your carrier board designs

Further Information



Watch our video



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Read our Whitepapers



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