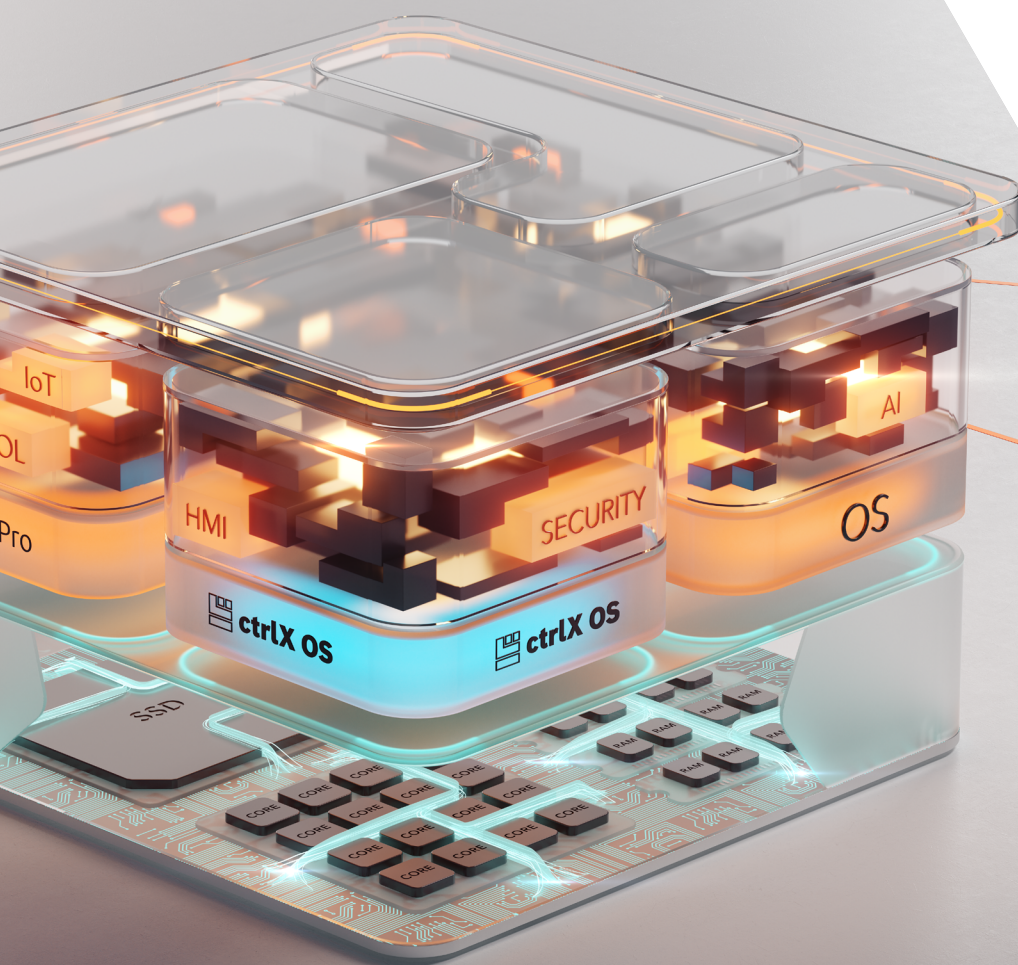


# Product Highlights

2025



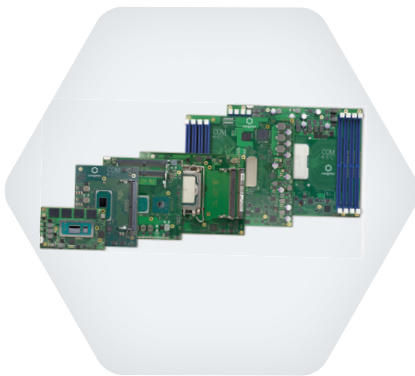
# ABOUT CONGATEC

congatec is a leading global provider of high-performance hardware and software building blocks for embedded and edge computing solutions based on Computer-on-Modules (COMs).

—○ **Vision** To innovate embedded computing technology and enable our customers to maximize the value of their solutions.

—○ **Mission** We empower innovation with secure, high-performance embedded building blocks from Computer-on-Modules to cloud, enabling our customers to focus on core competencies and shorten innovation cycles.

## CONGATEC PORTFOLIO



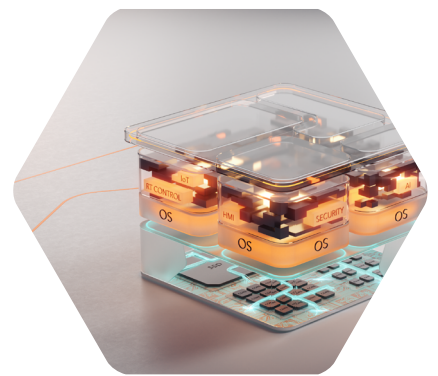
### Products

Based on the open COM-HPC, COM Express, and SMARC standards, our high-performance ecosystems help customers to simplify the use of embedded computing technology and be first to market with industry-leading solutions.



### Services

With our tailored services spanning every phase of your project, we aim to shorten your time-to-market while support throughout the entire development cycle from project definition to validation and roll-out.



### aReady.

The aReady. strategy simplifies the implementation and utilization of modern base technologies such as Artificial Intelligence, IoT connectivity, and Security throughout the entire lifecycle of your solutions.

# COMPUTER-ON-MODULES CONCEPT

Utilization of Computer-on-Modules is by far the most widely employed embedded design principle. Different Computer-on-Module form factor standards are available. COMs of the same standard are freely interchangeable, both across processor generations and between vendors.

## Computer-on-Modules

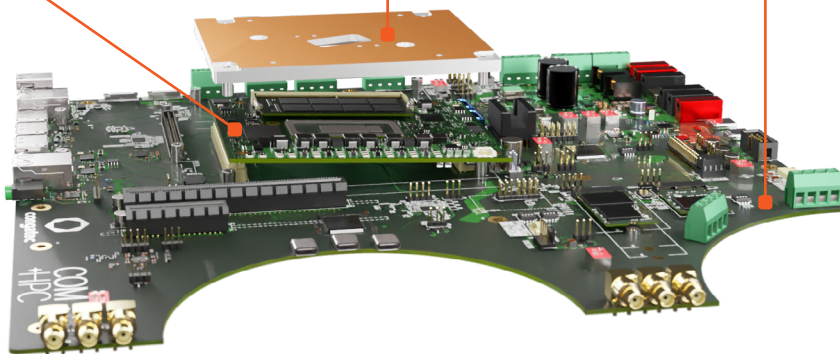
Function-validated super-component in a complete package

## Cooling solutions

Tailored solutions available for all modules, from passive to active cooling

## Carrier boards

Fast and cost-effective application-specific designs



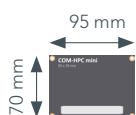
## Your benefits

- ▶ Short time-to-market
- ▶ Low development costs
- ▶ High design security and long-term availability
- ▶ High scalability and easy upgrades
- ▶ Efficient re-use of existing building blocks
- ▶ Comprehensive design-in support

## COM-HPC

### High-performance computing

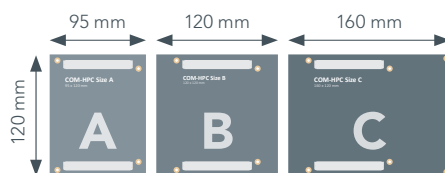
#### Mini Size



16x PCIe with Target Support*
4x USB4*
4x USB 3.2x1* / 2x USB 3.2 x2*
8x USB 2.0*
2x SATA*
12x GPIO, 2x UART, 1x CAN
eSPI, 2x SPI, SMB, 2x I2C
2x MIPI-CSI on flatfoil connector
HDA/I2S, 2x SoundWire
FuSa
2x NBaseT, 2x NBaseT Serdes*
2x DDI*, 1x eDP
Power 8-20V DC

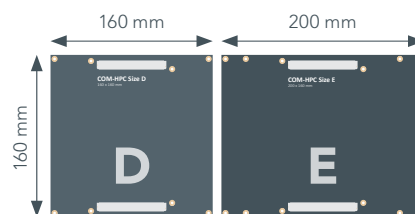
\* Some interfaces are shared.  
Check [congatec.com/COM-HPC-Mini](https://congatec.com/COM-HPC-Mini) for details

#### Client Sizes



49x PCIe
4x USB 4.0
4x USB 2.0
2x SATA
12x GPIO, 2x UART
eSPI, 2x SPI
SMB, 2x I2C, IPMB
2x SoundWire, I2S
2x NBaseT (max. 10 Gb)
3x DDI
eDP
Power 8-20V DC
2x 25GBE KR

#### Server Sizes



65x PCIe
2x USB 4.0
2x USB 3.1
4x USB 2.0
2x SATA
12x GPIO
2x UART
eSPI, 2x SPI
SMB, 2x I2C, IPMB
1x NBaseT (max. 10 Gb)
8x 25GBE KR
Power 12V DC



# PERFORMANCE CLASS

Enter the Era of accelerated AI processing

The most complete

## conga-TC750

- ▶ with Intel® Core™ Ultra (Series 2)
- ▶ available as **aReady.**  
COM

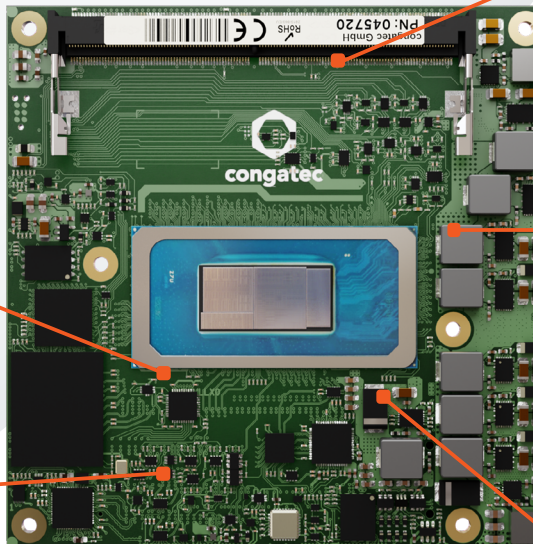
Cutting Edge Intel® Arc™ Graphics with XMV Systolic Arrays and up to 128 EUs

Next Level Edge AI Performance up to 99 TOPS total

Up to 128 GB RAM with in-band ECC

Drop-In Upgrade to TC700 - Scale up to Intel® Core™ Ultra 9

Intel® Performance Hybrid Architecture with up to 16 Cores and 22 Threads



The most advanced

## conga-TCR8

- ▶ with AMD Ryzen™ Embedded 8000 Series
- ▶ available as **aReady.**  
COM

Exceptional multi-purpose computing with up to 39 TOPS

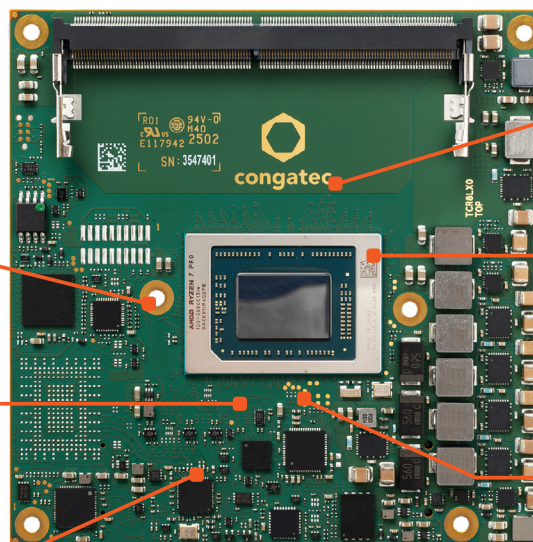
Highly efficient x86 computing with up to 8 Zen 4™ cores (4nm)

Superior single thread performance with up to 5.1 GHz

16 TOPS of dedicated AI performance with AMD XDNA™ NPU

Immersive graphics with Radeon RDNA 3™ and up to 12 compute units

For memory intensive applications with up to 96GB DDR5-5600 (ECC optional)





# PERFORMANCE CLASS

based on Intel® 13<sup>th</sup>/14<sup>th</sup> Generation and Series 2 Core™ Processors

## COM-HPC Client

### The most performant

Fuels even the performance hungriest embedded demands

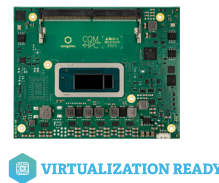


#### conga-HPC/cBLS

- ▶ Intel® performance hybrid design combines performance cores with Efficient cores
- ▶ Intel® UHD Graphics 730/770 driven by Xe Graphics architecture
- ▶ PCI Express Gen4 and Gen5

### The most versatile

Ready for the next generation of embedded applications at the edge



#### conga-HPC/cRLP

- ▶ Intel® performance hybrid design combines performance-cores with Efficient-cores
- ▶ Up to Intel® Iris® Xe Graphics architecture with up to 96 EUs
- ▶ Up to PCI Express Gen 5

## COM-HPC Mini

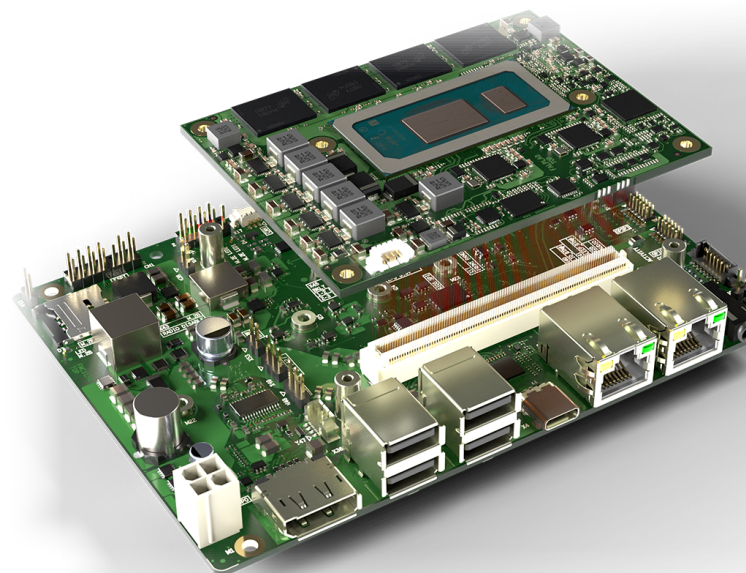
### The most compact

Engineered to fit tightest spaces



#### conga-HPC/mRLP

- ▶ Memory down LDDR5x and on soldered NVMe
- ▶ Options with integrated Iris Xe graphics
- ▶ Industrial temperature -40°C to 85°C



## COM Express Compact

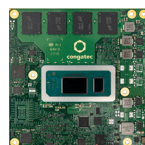
### The most popular

Upgrade with ease to meet latest requirements



#### conga-TC675

- ▶ Intel® hybrid design combines Performance cores with Efficient cores
- ▶ PCI Express Gen 4 | USB 4
- ▶ AI Acceleration with Intel® Deep Learning Boost (VNNI)



#### conga-TC675r

- ▶ Memory down LPDDR5x and options for on soldered NVMe
- ▶ Intel® Iris® Xe Graphics architecture with up to 96 EUs
- ▶ Industrial Temperature -40°C to 85°C

# SERVER CLASS

Highly agile application development with shortest time to market

## COM-HPC Server

Defines the ultra-high end of embedded computing with up to 100 Gbit/s Ethernet and up to 65 PCIe lanes

### The most powerful

The powerhouse for edge server



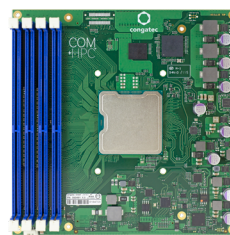
VIRTUALIZATION READY

#### conga-HPC/sILH

- ▶ Intel® Xeon® D2800 and D2700 processors
- ▶ Up to 22 cores
- ▶ Up to 512 GB RAM
- ▶ Industrial temperature –40 °C to 80 °C
- ▶ 100 Gb max. Ethernet bandwidth

### The most efficient

Enable power sensitive edge server designs



VIRTUALIZATION READY

#### conga-HPC/sILL

- ▶ Intel® Xeon® D1800 and D1700 processors
- ▶ Up to 10 cores
- ▶ Up to 256 GB RAM
- ▶ Industrial temperature –40 °C to 85 °C
- ▶ 100 Gb max. Ethernet bandwidth

## COM-Express Type 7

Server-on-Modules for embedded edge and fog servers support with up to 4x10 GbE and 32x PCIe lanes

### The most edgeable

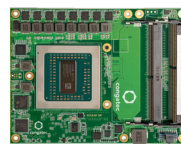
Enable highly rugged edge server designs



VIRTUALIZATION READY

#### conga-B7XI

- ▶ Intel® Xeon® D1800 and D1700 processors
- ▶ Up to 10 cores
- ▶ Up to 128 GB RAM
- ▶ Industrial temperature –40 °C to 85 °C
- ▶ Up to 4 × 10 GbE with CEI/KR/SFI interface support



#### conga-B7E3

- ▶ AMD EPYC™ Embedded 3000 processors
- ▶ Up to 16 cores
- ▶ Up to 96 GB RAM
- ▶ Industrial temperature –40 °C to 85 °C
- ▶ Up to 4 × 10 GbE with KR interface support

# LOW-POWER CLASS

Addressing deeply embedded small form factor applications

## SMARC Module

Create SMART solutions with SMARC modules - IT'S YOUR CHOICE

### The most adaptive

High multitasking capabilities



 VIRTUALIZATION READY

#### conga-SA8

- ▶ Intel Atom®, Core™ 3
- ▶ Up to 8-Cores
- ▶ GbE with TSN and TCC support
- ▶ WiFi option
- ▶ Industrial temperature  
-40°C to 85°C

### The most visionary

Powerful NPU and vision capacities



#### conga-SMX95

- ▶ NXP i.MX 95 Processor Family
- ▶ Up to 6-core Arm® Cortex®-A55
- ▶ NXP eIQ® Neutron NPU
- ▶ EdgeLock™ security
- ▶ Industrial temperature  
-40°C to 85°C

### The most scalable

Optimal balance between power and performance



 VIRTUALIZATION READY

#### conga-SA7

- ▶ Intel Atom® x6000E, Intel® Pentium® or Celeron® J
- ▶ Up to 4 cores
- ▶ GbE with TSN and TCC support
- ▶ Up to 16 GB LPDDR4x
- ▶ Options with WiFi
- ▶ Industrial temperature  
-40°C to 85°C

### The most intelligent

Deep learning inference at the edge



#### conga-STD4

- ▶ TI processor TDA4VM or DRA829J
- ▶ Up to 2 cores Arm® Cortex®-A72
- ▶ Up to 6x Arm® Cortex®-R5F for real-time communication
- ▶ C7x vector DSP
- ▶ Deep-learning accelerator
- ▶ Industrial temperature  
-40°C to 85°C

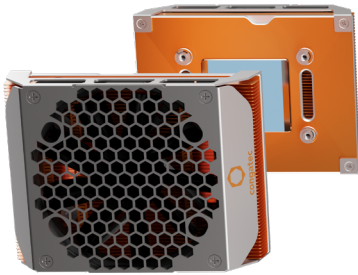




# COM COOLING SOLUTIONS

Addressing deeply embedded small form factor applications

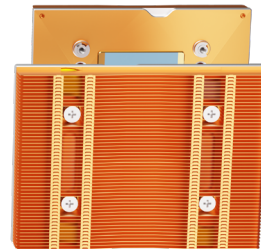
**Active cooling solution**



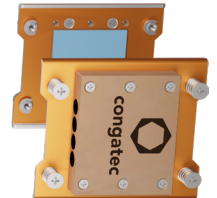
**Heatspreader**



**Passive cooling solution**



**Heatpipe adapter**



“congatec’s smart heatpipe cooling solutions pave the way for unlimited performance growth for Computer-On-Modules”

## High-Performance Cooling

The congatec cooling solutions for high-performance modules play a crucial role in system reliability, longevity, and performance. To ensure optimal heat dissipation, they feature special heatpipes that boost both performance and reliability.

Compared to conventional solutions without heatpipes, these advanced designs transfer more heat from the processor environment to the heatspreader. By cooling hot spots more efficiently, the processor can maintain its ideal thermal state for longer, ensuring maximum performance without throttling.

## Extended application range

A new acetone heatpipe cooling solution expands the application areas of module-based designs, enabling them to operate under extreme conditions previously unattainable with conventional cooling methods. Now it is possible to use COMs in systems that once required more elaborate, complex, and therefore costly COTS-based slot or full-custom system designs. This helps to significantly optimize the time-to-market, reduce development efforts and overall costs.



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

# SERVICES

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.



## 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 for carrier board designs



## Design Phase

### Design Guides

In depth best practice solutions

### Component Selection

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

### Schematic Review

Check the design to recognize problems at an early stage

### Layout Review

Detailed check and best practice advice from our specialists

### Signal Integrity Simulation

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

### BIOS/UEFI/Firmware Customization

Implementation of customized features or settings

### Bring-Up Support

congatec engineering support to bring life to the first prototypes quickly



## Validation Phase

### Signal Integrity Analysis

Signal integrity analysis of high speed interfaces such as PCI Express 6.0, Thunderbolt, USB, ...

### Thermal Solutions

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

### Customized Article Handling

Handling of manufacturing and logistics requirements

### Pre-EMC Measurement

Pre-EMC Measurement and engineering support to optimize the designs to EMC requirements

### MTBF

Reliability calculations based on different standards i.e. Telcordia 4, SN 29500, ...

# aReady.

Simplify your development with high-performance building blocks from COM to cloud

The aReady. strategy is specifically designed to simplify the implementation and utilization of modern base technologies. With our aReady. high-performance embedded building blocks, you can focus on your core competencies and become an

innovation driver in your industry. Our constantly growing aReady. portfolio includes aReady.COM, aReady.IOT and aReady.VT, covering the most relevant use cases for your applications.

## aReady. COM

### Application-ready Computer-on-Modules from congatec

aReady.COM reduces complexity of COM-based designs by seamlessly integrating hardware and software building blocks for unparalleled performance and flexibility.

#### Your Benefits

- ▶ Optimize time-to-market and design efforts by combining existing hardware and software building blocks

- ▶ Optimized cost and efficiency by reducing efforts for installation, compatibility testing and licensing
- ▶ Increased security by pre-evaluated hardware and software building blocks
- ▶ Reduced system size, weight, power, and cost by system consolidation
- ▶ Increased flexibility and scalability by simple extension with further building blocks

#### Customer Application

Applications built on aReady.COMs are more agile and responsive.

#### Operating Systems Layer

Every aReady.COM comes with pre-installed and licensed operating systems fitted to your needs.

#### Hardware-Layer

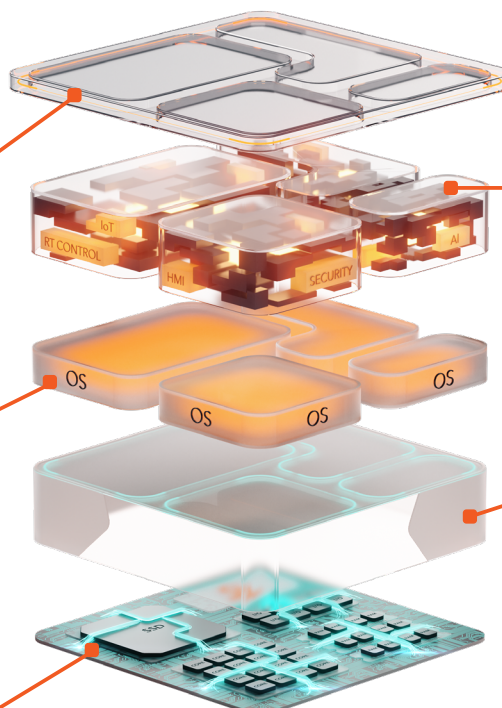
aReady.COMs facilitate flexible integration, enable easy upgrades to extend product lifecycles, and improve return on investment.

#### Software Layer

Pre-evaluated functional software building blocks minimize design efforts and compatibility concerns.

#### Virtualization Layer

Hypervisor-on-Module enables the consolidation of multiple applications to make full use of all resources.





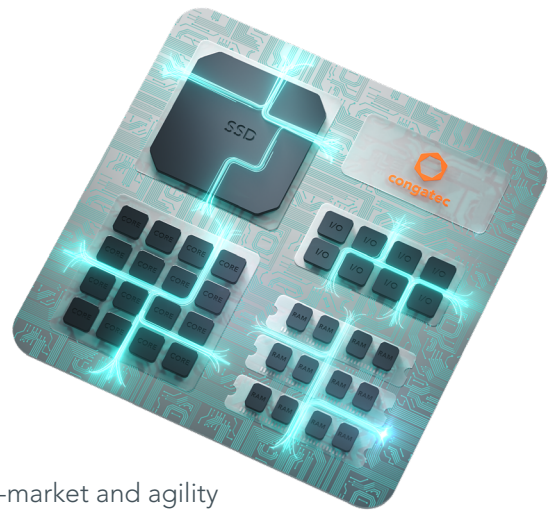


## Virtualization technology from congatec – consolidate what belongs together

Harness the power of today's multi-core processors with our aReady.VT technology. Consolidate functionality that previously required multiple dedicated systems onto a single hardware platform.

### Your Benefits

- ▶ Improved time-to-market and agility
- ▶ Reduced system size, weight, power and cost
- ▶ Full flexibility in system functionality
- ▶ Support from low-power modules to high-performance server designs



## Hypervisor-on-Modules

At congatec, the hypervisor is now standard in all our new x86-based Computer-on-Modules. With the free trial license, you can immediately start evaluating the advantages

of virtualization. Check out our entire Hypervisor-on-Module product range.

## Hypervisor

Additionally, we offer the industry leading Hypervisor from Real-Time Systems as a stand-alone software for your applications,

no matter if you are relying on congatec hardware or not.



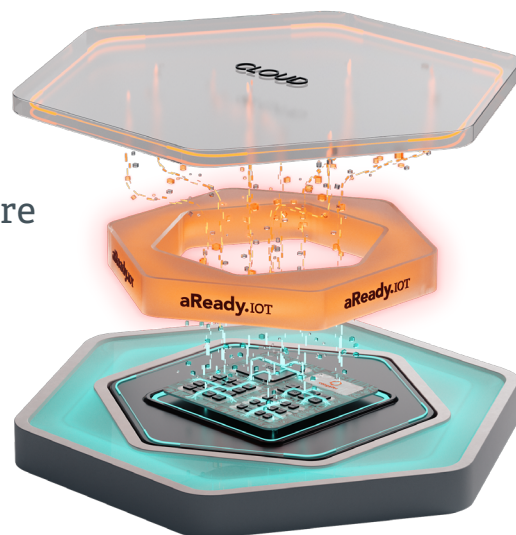
## IoT technology from congatec – for secure OT/IT connection from COM to cloud

aReady.IOT Building Blocks are designed for secure IoT connectivity from COM to cloud. Developers use them for secure connection between Operational Technology (OT) and Information Technology (IT).

You can choose from application-ready software building blocks as part of our aReady.COM offerings or opt for our conga-connect multi-edge device, which comes as an out-of-the-box hardware solution.

### Your benefits:

- ▶ High security by physical network separation
- ▶ VPN gateway function adds another security layer
- ▶ Enhanced communication via wireless and wired connectivity options
- ▶ Pre-configured for fast and easy roll-out
- ▶ High scalability enables digitization even across multiple locations
- ▶ High integration level ideal for system integrators



## About congatec

congatec is a leading global provider of high-performance hardware and software building blocks for embedded and edge computing solutions based on Computer-on-Modules (COMs). These advanced computer modules drive systems and devices across industries such as industrial automation, medical technology, robotics, telecommunications, and more. congatec's high-performance aReady. ecosystems simplify and accelerate the solution development, from COM to cloud. This application-ready approach combines COMs with services and customizable technologies that enable cutting-edge advancements in system consolidation, IoT, security, and artificial intelligence. Supported by its majority shareholder, DBAG Fund VIII – a German mid-market fund focused on driving growth for industrial enterprises – congatec has the financial backing and M&A expertise to capitalize on expanding market opportunities.

## Let's connect



## Headquarter

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info@congatec.com  
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