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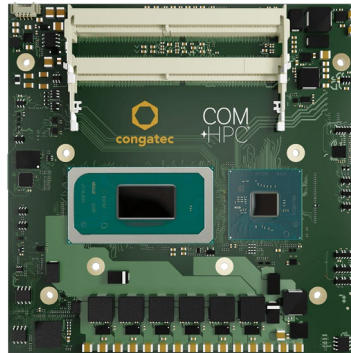


# Datasheet

**congatec**

**conga-HPC/cTLH**

COM-HPC high performance module based on 11th Gen Intel® Core™ processor series (code name "Tiger Lake-H")



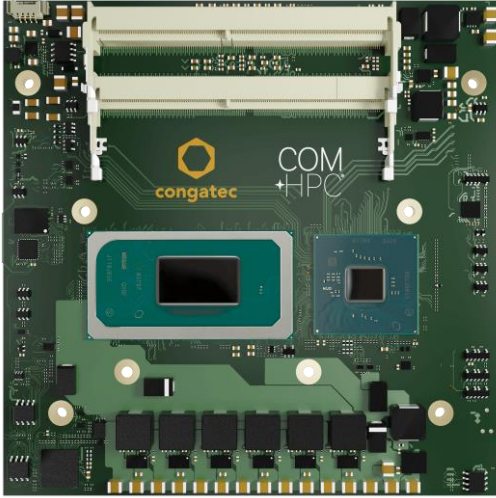
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# 11<sup>TH</sup> GEN INTEL® CORE™ PROCESSORS

## conga-HPC/cTLH

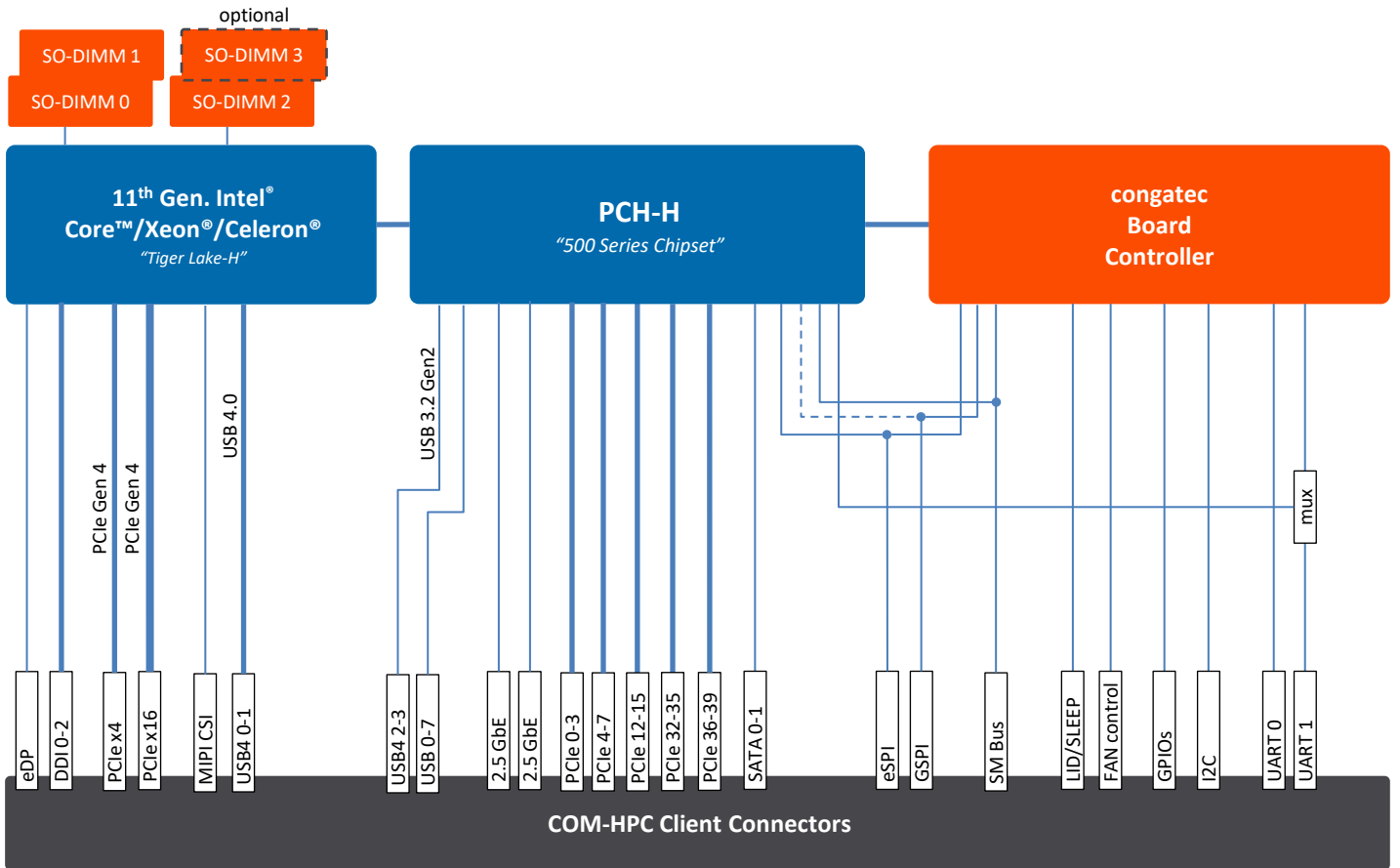


## COM+HPC®

- Embedded/Industrial use condition
- Extended temperature options available
- PCI Express Gen 4 | USB 4.0
- AI/DL Instruction Sets including VNNI
- Up to 128 Gbyte DDR4-3200 MT/s
- Integrated Xe (Gen 12) graphics with 32 EU

<b>Form Factor</b>	COM-HPC Size B, (120 x 120 mm)   Client connector pinout					
<b>CPU</b>	<b>Processor</b>	<b>Cores/Threads</b>	<b>Base Frequency/max. Turbo</b>	<b>TDP</b>	<b>Graphics</b>	<b>Intel Use Condition</b>
	i7-11850HE	8C/16T	2.6GHz / 4.7GHz	45W/35W	Intel® UHD 32	General Embedded
	i5-11500HE	6C/12T	2.6GHz / 4.5GHz	45W/35W	Intel® UHD 32	General Embedded
	i3-11100HE	4C/8T	2.4GHz / 4.4GHz	45W/35W	Intel® UHD 16	General Embedded
	6600HE	2C/2T	2.6GHz	35W	Intel® UHD 16	General Embedded
	W-11865MRE	8C/16T	2.6GHz / 4.7GHz	45W/35W	Intel® UHD 32	Industrial
	W-11555MRE	6C/12T	2.6GHz / 4.5GHz	45W/35W	Intel® UHD 32	Industrial
	W-11155MRE	4C/8T	2.4GHz / 4.4GHz	45W/35W	Intel® UHD 16	Industrial
	W-11865MLE	8C/16T	1.5GHz / 4.5GHz	25W	Intel® UHD 32	Industrial
	W-11555MLE	6C/12T	1.9GHz / 4.4GHz	25W	Intel® UHD 32	Industrial
	W-11155MLE	4C/8T	1.8GHz / 3.1GHz	25W	Intel® UHD 16	Industrial
<b>Chipset</b>	RM590E   QM580E   HM570E					
<b>DRAM</b>	Up to 4 SO-DIMM sockets for DDR4 ECC memory modules up to 32 GByte each (128 GByte total) with 3200 MT/s					
<b>Graphics</b>	Integrated Xe (Gen 12) graphics engine with up to 32 EU (Execution Units)   Supporting 4 independent display units (4x 4k/2x 8K)   Enhanced media (AV1/12b) with up to 2 VDBox   Next Gen IPU6 (Image Processing Unit) with DPHY2.1   DP 1.4					
<b>Display</b>	3x DP/DP++   1x eDP/LVDS					
<b>Ethernet</b>	2x 2.5 GbE TSN Ethernet					
<b>I/O Interfaces</b>	4x PCIe Gen4   PEG support x16 (PCIe Gen4) 20x PCIe Gen3 2x USB 4.0   2x USB 3.2   8x USB 2.0 2x SATA III (6Gb/s)   eSPI   2x UART   12x GPIO I2C   4x MIPI-CSI					
<b>Audio</b>	1x I2S   2x Soundwire					
<b>congatec Board controller</b>	Multi Stage Watchdog   non-volatile User Data Storage   Manufacturing and Board Information   Board Statistics I <sup>2</sup> C bus (fast mode, 400 kHz, multi-master)   Power Loss Control   Hardware Health Monitoring   POST Code redirection					
<b>Embedded BIOS Feature</b>	AMI Aptio® UEFI firmware   32 Mbyte serial SPI with congatec Embedded BIOS feature   OEM Logo   OEM CMOS default settings   LCD Control   Display Auto Detection   Backlight Control   Flash Update					
<b>Security</b>	Trusted Platform Module (TPM 2.0)					
<b>Power Management</b>	ACPI 6.0 with battery support					
<b>Operating Systems</b>	Microsoft® Windows 10   Microsoft® Windows 10 IoT Enterprise   Linux   Yocto   RTS Hypervisor					
<b>Temperature Range</b>	Commercial: Operating Temperature: 0 to +60°C		Storage Temperature: -20 to +80°C			
	Industrial: Operating Temperature: -40 to +85°C		Storage Temperature: -40 to +85°C			
<b>Humidity</b>	Operating: 10 to 90% r. H. non cond.					
	Storage: 5 to 95% r. H. non cond.					
<b>Size</b>	120 x 120 mm <sup>2</sup>					

# conga-HPC/cTLH | Block Diagram



# conga-HPC/cTLH | Modules Order Information

Article	PN	Description
conga-HPC/cTLH-i7-11850HE	050800	COM-HPC Size B module based on Intel® Core™ i7-11850HE 8-core processor with 2.6GHz up to 4.7GHz turbo boost, 24MB Intel® Smart Cache, Intel® UHD Graphics with 32EU and dual channel DDR4 3200 MT/s memory interface.   Chipset QM580E   Intel® Tiger Lake-H   Commercial temperature range
conga-HPC/cTLH-i5-11500HE	050801	COM-HPC Size B module based on Intel® Core™ i5-11500HE 6-core processor with 2.6GHz up to 4.5GHz turbo boost, 12MB Intel® Smart Cache, Intel® UHD Graphics with 32EU and dual channel DDR4 3200 MT/s memory interface.   Chipset QM580E   Intel® Tiger Lake-H   Commercial temperature range
conga-HPC/cTLH-i3-11100HE	050802	COM-HPC Size B module based on Intel® Core™ i3-11100HE 4-core processor with 2.4GHz up to 4.4GHz turbo boost, 8MB Intel® Smart Cache, Intel® UHD Graphics with 16EU and dual channel DDR4 3200 MT/s memory interface.   Chipset HM570E   Intel® Tiger Lake-H   Commercial temperature range
conga-HPC/cTLH-6600HE	050803	COM-HPC Size B module based on Intel® Celeron 6600HE 2-core processor with 2.6GHz base frequency, 8MB Intel® Smart Cache, Intel® UHD Graphics with 16EU and dual channel DDR4 3200 MT/s memory interface.   Chipset HM570E   Intel® Tiger Lake-H   Commercial temperature range
conga-HPC/cTLH-W-11865MRE	050810	COM-HPC Size B module based on Intel® Xeon® W-11865MRE 8-core processor with 2.6GHz up to 4.7GHz turbo boost, 24MB Intel® Smart Cache, Intel® UHD Graphics with 32EU and dual channel DDR4 3200 MT/s memory interface.   Chipset RM590E   Intel® Tiger Lake-H   Industrial temperature range
conga-HPC/cTLH-W-11555MRE	050811	COM-HPC Size B module based on Intel® Xeon® W-11555MRE 6-core processor with 2.6GHz up to 4.5GHz turbo boost, 12MB Intel® Smart Cache, Intel® UHD Graphics with 32EU and dual channel DDR4 3200 MT/s memory interface.   Chipset RM590E   Intel® Tiger Lake-H   Industrial temperature range
conga-HPC/cTLH-W-11155MRE	050812	COM-HPC Size B module based on Intel® Xeon® W-11155MRE 4-core processor with 2.4GHz up to 4.4GHz turbo boost, 8MB Intel® Smart Cache, Intel® UHD Graphics with 16EU and dual channel DDR4 3200 MT/s memory interface.   Chipset RM590E   Intel® Tiger Lake-H   Industrial temperature range
conga-HPC/cTLH-W-11865MLE	050813	COM-HPC Size B module based on Intel® Xeon® W-11865MLE 8-core processor with 1.5GHz up to 4.5GHz turbo boost, 24MB Intel® Smart Cache, Intel® UHD Graphics with 32EU and dual channel DDR4 3200 MT/s memory interface.   Chipset RM590E   Intel® Tiger Lake-H   Commercial temperature range
conga-HPC/cTLH-W-11555MLE	050814	COM-HPC Size B module based on Intel® Xeon® W-11555MLE 6-core processor with 1.9GHz up to 4.4GHz turbo boost, 12MB Intel® Smart Cache, Intel® UHD Graphics with 32EU and dual channel DDR4 3200 MT/s memory interface.   Chipset RM590E   Intel® Tiger Lake-H   Commercial temperature range
conga-HPC/cTLH-W-11155MLE	050815	COM-HPC Size B module based on Intel® Xeon® W-11155MRE 4-core processor with 1.8GHz up to 3.1GHz turbo boost, 8MB Intel® Smart Cache, Intel® UHD Graphics with 16EU and dual channel DDR4 3200 MT/s memory interface.   Chipset RM590E   Intel® Tiger Lake-H   Commercial temperature range

# conga-HPC/cTLH | Accessories Order Information

Article	PN	Description
conga-HPC/cTLH-CSA-HP-B	050850	Standard active cooling solution for high performance COM-HPC module conga-HPC/cTLH with integrated heatpipe, 29mm height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-HPC/cTLH-CSA-HP-T	050851	Standard active cooling solution for high performance COM-HPC module conga-HPC/cTLH with integrated heatpipe, 29mm height and integrated 12V fan. All standoffs are M2.5mm thread.
conga-HPC/cTLH-CSP-HP-B	050852	Standard passive cooling solution for high performance COM-HPC module conga-HPC/cTLH with integrated heatpipe, 29mm height. All standoffs are with 2.7mm bore hole.
conga-HPC/cTLH-CSP-HP-T	050853	Standard passive cooling solution for high performance COM-HPC module conga-HPC/cTLH with integrated heatpipe, 29mm height. All standoffs are with M2.5mm thread.
conga-HPC/cTLH-HSP-HP-B	050854	Standard heatspreader for high performance COM-HPC module conga-HPC/cTLH with integrated heatpipe, 13mm height. All standoffs are with 2.7mm bore hole.
conga-HPC/cTLH-HSP-HP-T	050855	Standard heatspreader solution for high performance COM-HPC module conga-HPC/cTLH with integrated heatpipe, 13mm height. All standoffs are with M2.5mm thread.
conga-HPC/EVAL-Client	065600	Evaluation Carrier Board for COM-HPC Client type Modules.

Our company network supports you worldwide with offices in Germany, Austria, Switzerland, the UK and the USA. For more information please contact:

## Headquarters

### Germany



### FORTEC Elektronik AG

Augsburger Str. 2b  
82110 Germering

Phone: +49 89 894450-0  
E-Mail: [info@fortecaq.de](mailto:info@fortecaq.de)  
Internet: [www.fortecaq.de](http://www.fortecaq.de)

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## Fortec Group Members

### Austria



### Distec GmbH Office Vienna

Nuschinggasse 12  
1230 Wien

Phone: +43 1 8673492-0  
E-Mail: [info@distec.de](mailto:info@distec.de)  
Internet: [www.distec.de](http://www.distec.de)

### Germany



### Distec GmbH

Augsburger Str. 2b  
82110 Germering

Phone: +49 89 894363-0  
E-Mail: [info@distec.de](mailto:info@distec.de)  
Internet: [www.distec.de](http://www.distec.de)

### Switzerland



### ALTRAC AG

Bahnhofstraße 3  
5436 Würenlos

Phone: +41 44 7446111  
E-Mail: [info@altrac.ch](mailto:info@altrac.ch)  
Internet: [www.altrac.ch](http://www.altrac.ch)

### United Kingdom



### Display Technology Ltd.

Osprey House, 1 Osprey Court  
Hinchingsbrooke Business Park  
Huntingdon, Cambridgeshire, PE29 6FN

Phone: +44 1480 411600  
E-Mail: [info@displaytechnology.co.uk](mailto:info@displaytechnology.co.uk)  
Internet: [www.displaytechnology.co.uk](http://www.displaytechnology.co.uk)

### USA



### Apollo Display Technologies, Corp.

87 Raynor Avenue, Unit 1  
Ronkonkoma, NY 11779

Phone: +1 631 5804360  
E-Mail: [info@apolloDisplays.com](mailto:info@apolloDisplays.com)  
Internet: [www.apolloDisplays.com](http://www.apolloDisplays.com)