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# Datasheet

## Congatec

### conga-HPC/cRLS

**COM-HPC Client Size C high performance module based on 13th Generation Intel® Core™ Raptor  
Lake-S processor**



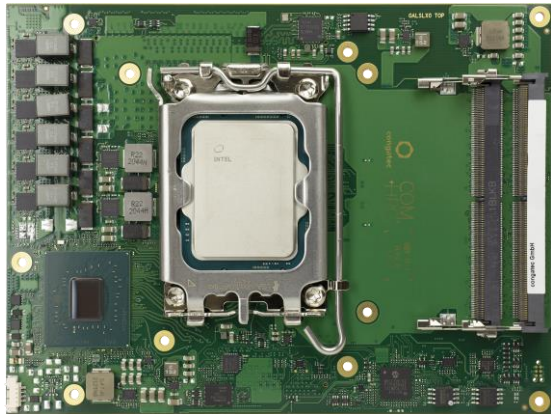
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# 13<sup>th</sup> Gen Intel® Core™ Embedded Desktop Processors

## conga-HPC/cRLS

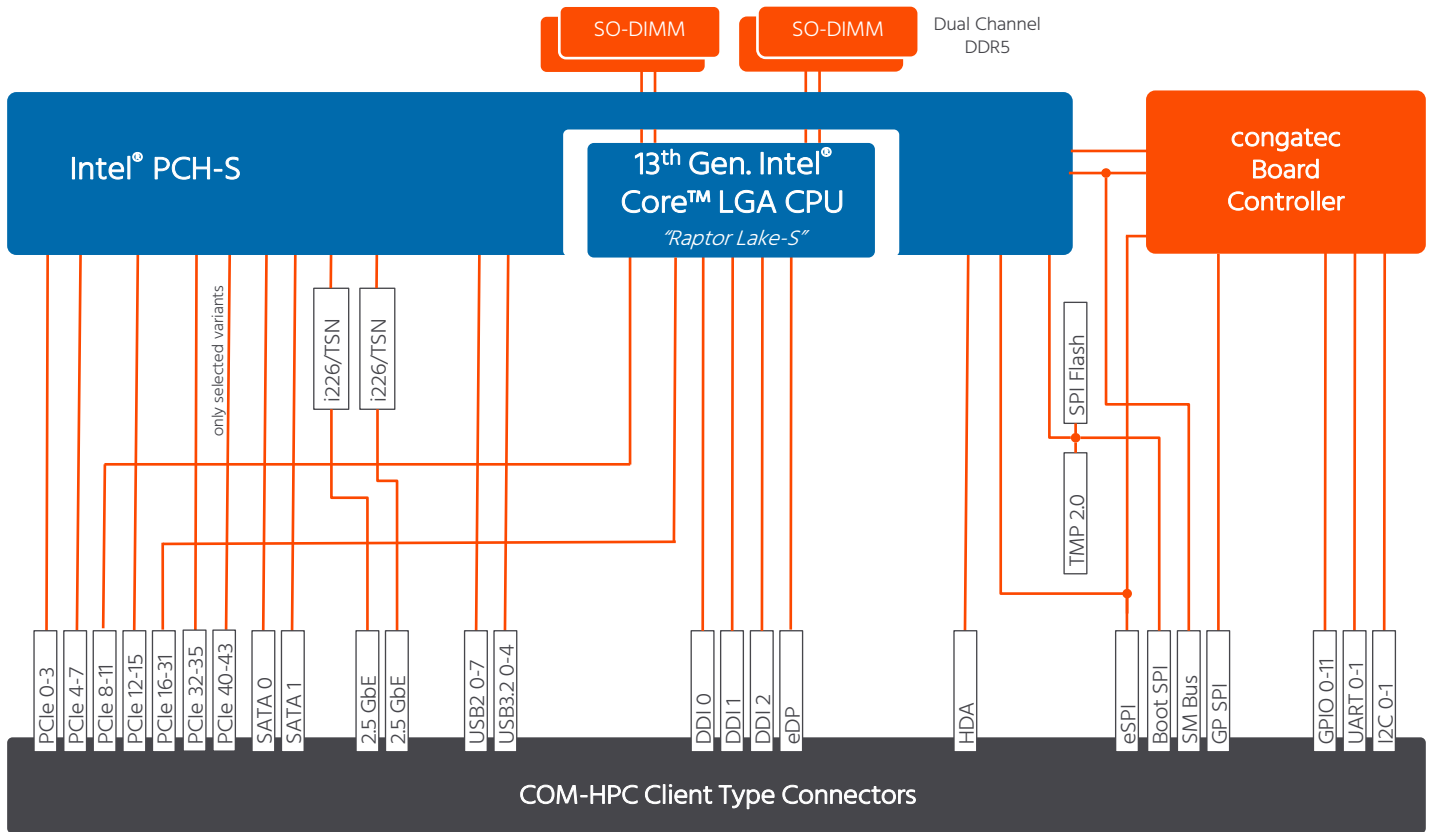


### COM+HPC®

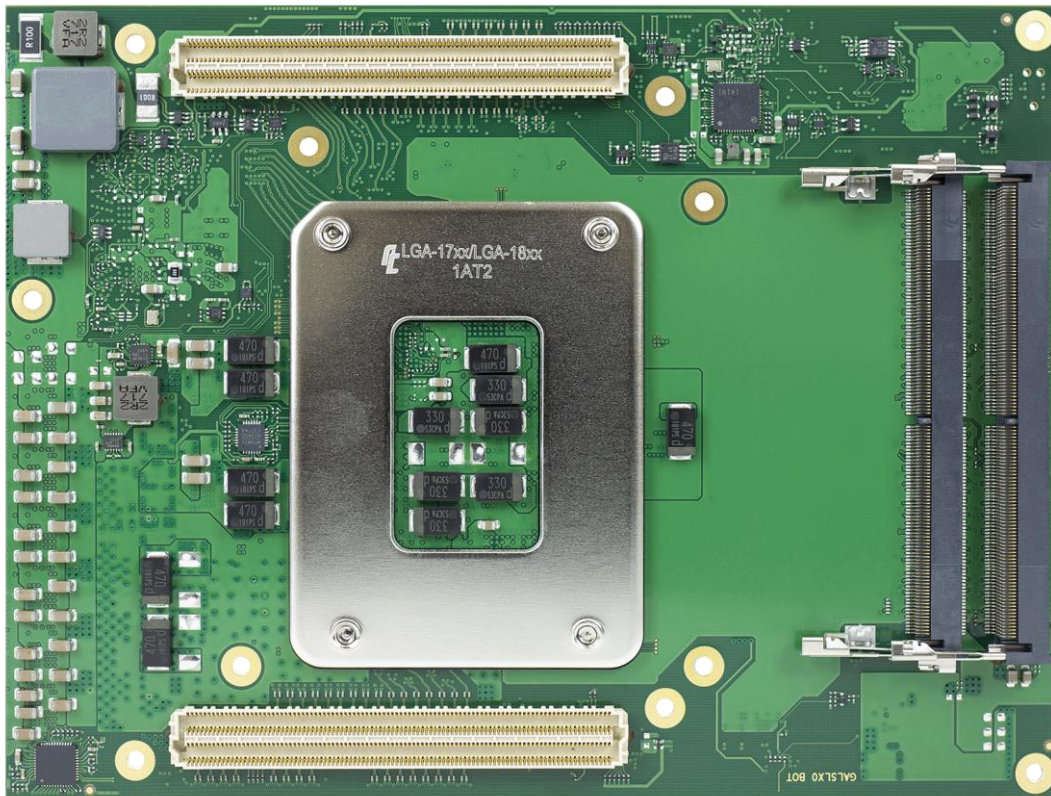
- Intel® hybrid design combines Performance-cores with Efficient-cores
- Intel® UHD Graphics 730/770 driven by X<sup>e</sup> Architecture
- PCI Express Gen 4/5 | USB 3.2 Gen 2x2
- AI Acceleration based on Intel® Deep Learning
- Embedded Use Condition SKUs

<b>Form factor</b>	COM-HPC Client Size C   Client Connector Pinout						
<b>CPUs</b>	CPU	Processor Base Power	Cores count (P+E)	Processor Threads	P-cores Freq. GHz	E-cores Freq. GHz	GfX Execution Units
	i9-13900E	65W	24 (8+16)	32	1.8 / 5.2	1.3 / 4.0	32 EU
	i7-13700E	65W	16 (8+8)	24	1.9 / 5.1	1.3 / 3.9	32 EU
	i5-13400E	65W	10 (6+4)	16	2.4 / 4.6	1.5 / 3.3	24 EU
	i3-13100E	65W	4 (4+0)	8	3.3 / 4.4	- / -	24 EU
<b>Processor Socket</b>	LGA 1700						
<b>DRAM</b>	4 SO-DIMM sockets for DDR5 memory modules up to 32 GByte each (128 GByte system capacity)						
<b>Graphics</b>	Intel® UHD Graphics 730/770 driven by X <sup>e</sup> Architecture   up to 32 EU						
<b>Display</b>	3x DDI   eDP						
<b>Ethernet</b>	2x 2.5 GbE with TSN support via Intel® i226 Ethernet controller series						
<b>I/O Interfaces</b>	1x16 PCIe Gen 5 (PEG port)   3x4 PCIe Gen 4   3x4 PCIe Gen 3   4x USB 3.2 Gen2x2   8x USB2.0   2x SATA 2x UART   12x GPIO						
<b>Audio</b>	High-Definition Audio						
<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   Real Time Systems Hypervisor						
<b>Temperature</b>	Operating Temp.: 0°C ... +60°C			Storage Temp.: -20°C ... +70°C			
<b>Humidity</b>	Operating.: 10% ... 90% r. H. non cond.			Storage.: 5% ... 95% r. H. non cond.			
<b>Size</b>	120 x 160 mm						

# conga-HPC/cRLS | Block Diagram



# conga-HPC/cRLS | Bottom Side View



# conga-HPC/cRLS | Order Information

Article	PN	Description
conga-HPC/cRLS-i9-13900E	049800	COM-HPC Client module based on Intel® Core™ i9-13900E LGA 1700 processor with 8 P-cores 1.8GHz up to 5.2GHz Turbo and 16 E-cores 1.3GHz up to 4.0GHz Turbo   36MB Intel® Smart Cache   Intel® UHD Graphics 770 with 32EUs   Dual channel DDR5 memory interface   Chipset R680E   Intel® code name: Raptor Lake-S
conga-HPC/cRLS-i7-13700E	049801	COM-HPC Client module based on Intel® Core™ i7-13700E LGA 1700 processor with 8 P-cores 1.9GHz up to 5.1GHz Turbo and 8 E-cores 1.3GHz up to 3.9GHz Turbo   30MB Intel® Smart Cache   Intel® UHD Graphics 770 with 32EUs   Dual channel DDR5 memory interface   Chipset R680E   Intel® code name: Raptor Lake-S
conga-HPC/cRLS-i5-13400E	049802	COM-HPC Client module based on Intel® Core™ i5-13400E LGA 1700 processor with 6 P-cores 2.4GHz up to 4.6GHz Turbo and 4 E-cores 1.5GHz up to 3.3GHz Turbo   20MB Intel® Smart Cache   Intel® UHD Graphics 730 with 24EUs   Dual channel DDR5 memory interface   Chipset R680E   Intel® code name: Raptor Lake-S
conga-HPC/cRLS-i3-13100E	049803	COM-HPC Client module based on Intel® Core™ i3-13100E LGA 1700 processor with 4 P-cores 3.3GHz up to 4.4GHz Turbo   12MB Intel® Smart Cache   Intel® UHD Graphics 730 with 24EUs   Dual channel DDR5 memory interface   Chipset Q670E   Intel® code name: Raptor Lake-S
conga-HPC/cRLS-CSA-HP-B	049650	Standard active cooling solution for COM-HPC module conga-HPC/cRLS with integrated heat pipes, 30mm overall height and two integrated 12V fans. All standoffs are with 2.7mm bore hole.
conga-HPC/cRLS-CSA-HP-T	049651	Standard active cooling solution for COM-HPC module conga-HPC/cRLS with integrated heat pipes, 30mm height and two integrated 12V fans. All standoffs are M2.5mm threaded.
conga-HPC/cRLS-HSP-HP-B	049652	Standard heatspreader for COM-HPC module conga-HPC/cRLS with integrated heat pipes, 13mm height. All standoffs are with 2.7mm bore hole.
conga-HPC/cRLS-HSP-HP-T	049653	Standard heatspreader for COM-HPC module conga-HPC/cRLS with integrated heat pipes, 13mm height. All standoffs are M2.5mm threaded.
conga-HPC/cRLS-HPA	049654	Standard heatpipe adapter for COM-HPC module conga-HPC/cRLS.

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