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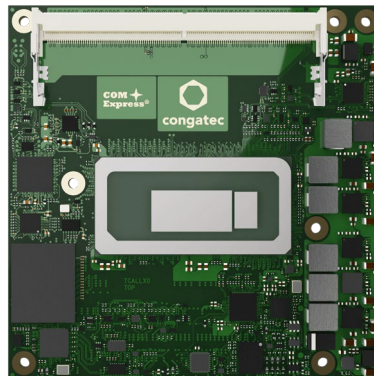


# Datasheet

## congatec

### conga-TC670

COM Express Type 6 Compact module based on 12th Gen Alder Lake Intel® Core™ embedded mobile processors



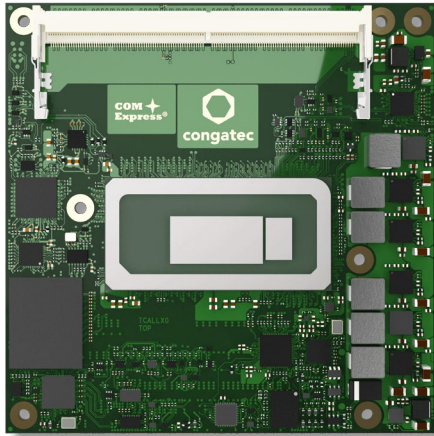
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# 12<sup>th</sup> Gen Intel® Core™ Embedded mobile Processors

## conga-TC670

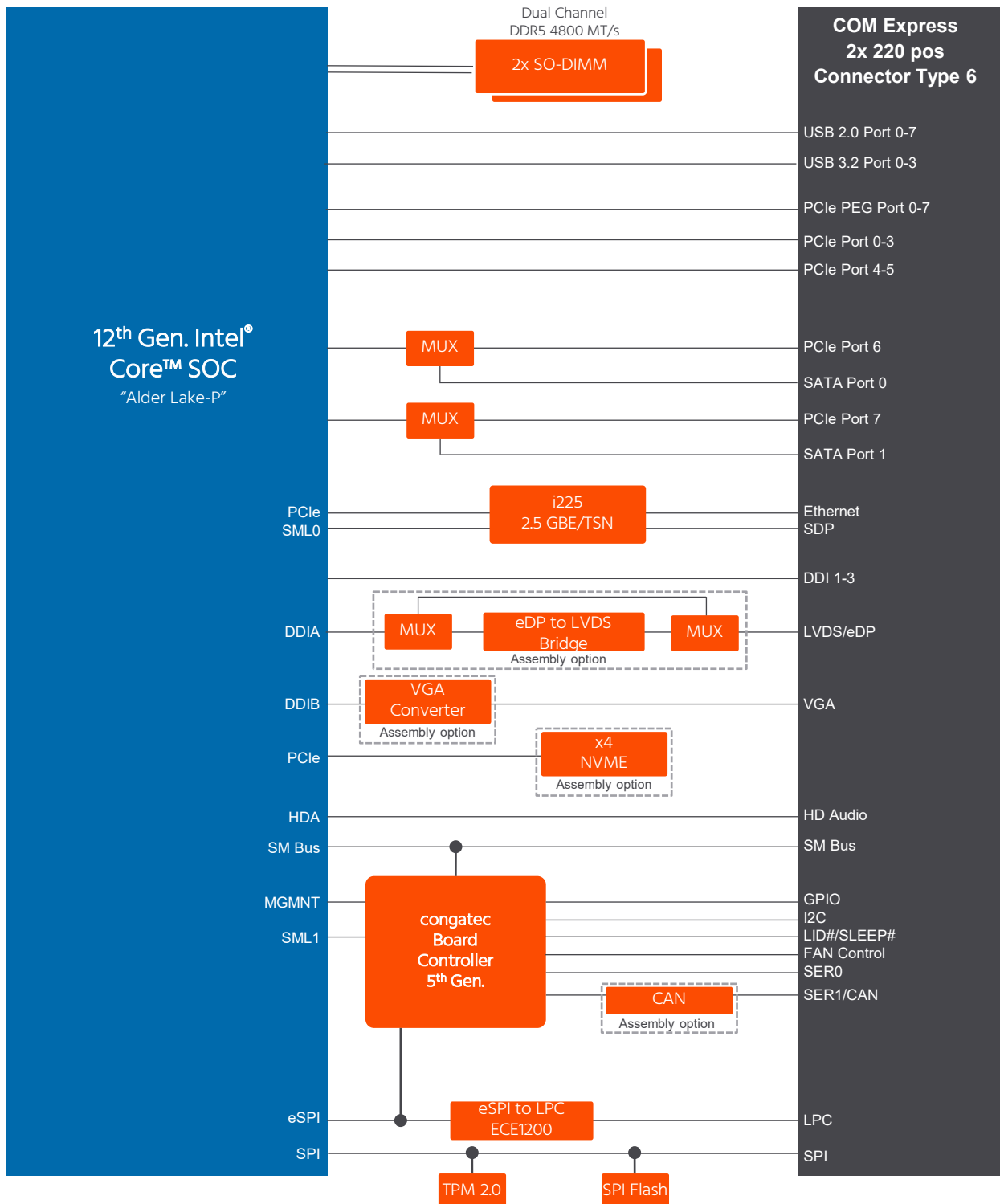


### COM Express®

- Intel® hybrid design combines Performance-cores with Efficient-cores
- Up to Intel® Iris® Xe Graphics architecture with up to 96 EUs
- PCI Express Gen 4 | USB 3.2
- AI Acceleration with Intel® Deep Learning Boost (VNNI)
- Embedded Use Condition SKUs

<b>Form factor</b>	COM Express® Compact   Type 6 connector pinout						
<b>CPUs</b>	CPU	TDP Target	Cores count (P+E)	Processor Threads	P-cores Freq. GHz	E-cores Freq. GHz	Gfx Execution Units
	i7-12800HE	45W	14 (6+8)	20	2.4 / 4.6	1.8 / 3.5	96
	i5-12600HE	45W	12 (4+8)	16	2.5 / 4.5	1.8 / 3.3	80
	i3-12300HE	45W	8 (4+4)	12	1.9 / 4.3	1.5 / 3.3	48
<b>DRAM</b>	2 SO-DIMM sockets for DDR5 memory modules up to 32 GByte each (max. 64 GByte system capacity)   up to 4800 MT/s						
<b>Mass Storage</b>	NVMe x4 SSD (optional)						
<b>Graphics</b>	Intel® UHD Graphics or Intel® Iris® Xe Graphics architecture   up to 96 EUs						
<b>Display</b>	3x DDI (up to 5K support)   LVDS (optional eDP)   VGA (optional)						
<b>Ethernet</b>	2.5 GbE TSN Ethernet (vial Intel® i225 LM)						
<b>I/O Interfaces</b>	8 PCIe Gen4 PEG   up to 8 PCIe Gen3   8x USB (up to 4x USB 3.2, up to 8x USB 2.0)   up to 2x SATA   up to 2x UART   CAN (opt.)   GPIOs   SPI   LPC   SM Bus   I2C						
<b>Audio</b>	HDA						
<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 11   Microsoft® Windows 10   Microsoft® Windows 10 IoT Enterprise   Linux   Yocto   Real Time Systems Hypervisor						
<b>Temperature</b>	Operating: 0°C ... +60°C			Storage: -20°C ... +70°C			
<b>Humidity</b>	Operating: 10% ... 90% r. H. non cond.			Storage: 5% ... 95% r. H. non cond.			
<b>Size</b>	95 x 95 mm						

# conga-TC670 | Block Diagram



# conga-TC670 | Order Information

Article	PN	Description
conga-TC670/i7-12800HE	049700	COM Express Type 6 Compact module based on Intel® Core™ i7-12800HE processor with 6 P-cores 2.4GHz up to 4.6GHz and 8 E-cores 1.8GHz up to 3.5GHz   24MB Intel® Smart Cache   Intel® Iris® X <sup>e</sup> Graphics architecture with 96 EUs   Dual channel DDR5 4800 MT/s memory interface   Intel® code name Alder Lake-P (H-Series)
conga-TC670/i5-12600HE	049703	COM Express Type 6 Compact module based on Intel® Core™ i5-12600HE processor with 4 P-cores 2.5GHz up to 4.5GHz and 8 E-cores 1.8GHz up to 3.3GHz   18MB Intel® Smart Cache   Intel® Iris® X <sup>e</sup> Graphics architecture with 80EUs   Dual channel DDR5 4800 MT/s memory interface   Intel® code name Alder Lake-P (H-Series)
conga-TC670/i3-12300HE	049706	COM Express Type 6 Compact module based on Intel® Core™ i3-12300HE processor with 4 P-cores 1.9GHz up to 4.3GHz and 4 E-cores 1.5GHz up to 3.3GHz   12MB Intel® Smart Cache   Intel® UHD Graphics with 48EUs   Dual channel DDR5 4800 MT/s memory interface   Intel® code name Alder Lake-P (H-Series)

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)