SERVER-CLASS EMBEDDED PERFORMANCE

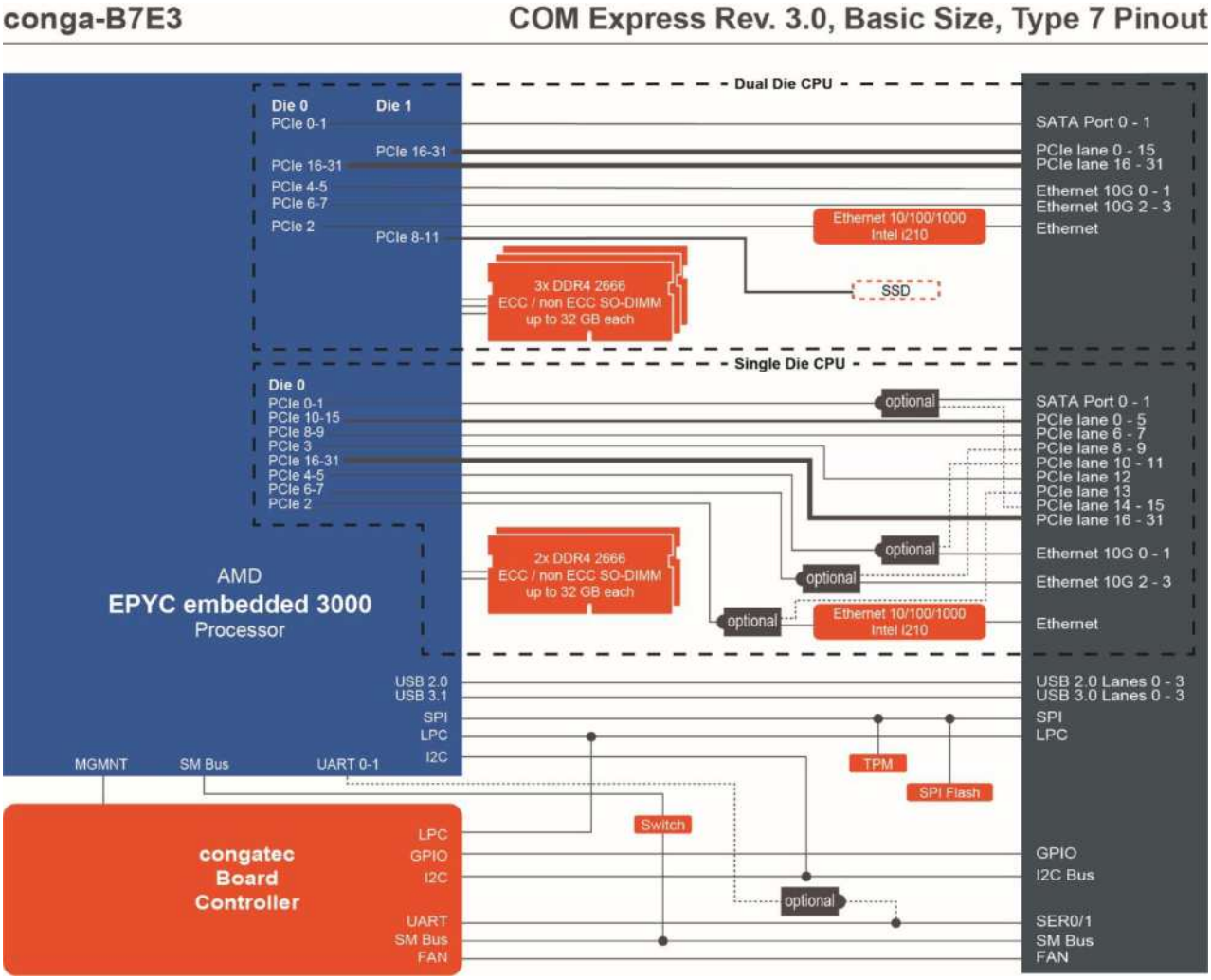
conga-B7E3



- COM Express Type 7
- AMD EPYC™ Embedded 3000 Series
  up to 16 Cores, 32MB Cache and 30..100W TDP
- 4x 10 Gigabit Ethernet KR Interface
- Up to 32 PCI Express generation 3 lanes
- Industrial grade variant
- Optional Onbard NVMe SSD up to 1 TB capacity

COM Express®

Formfactor	COM Express® Rev. 3.0, Basic Formfactor (95 x 125 mm), Type 7 Connector Pinout
CPU	**Commercial Versions** AMD EPYC Embedded 3000 Model 3451 — 16 Cores / 32 Threads — Dual Die — 2.1 / 3.0 GHz — 32 MB cache — 100W TDP AMD EPYC Embedded 3000 Model 3351 — 12 Cores / 24 Threads — Dual Die — 1.9 / 3.0 GHz — 32 MB cache — 80W TDP AMD EPYC Embedded 3000 Model 3251 — 8 Cores / 16 Threads — Single Die — 2.5 / 3.1 GHz — 16 MB cache — 55W TDP AMD EPYC Embedded 3000 Model 3201 — 8 Cores / 8 Threads — Single Die — 1.5 / 3.1 GHz — 16 MB cache — 30W TDP AMD EPYC Embedded 3000 Model 3151 — 4 Cores / 8 Threads — Single Die — 2.7 / 2.9 GHz — 16 MB cache — 45W TDP AMD EPYC Embedded 3000 Model 3101 — 4 Cores / 4 Threads — Single Die — 2.1 / 2.9 GHz — 8 MB cache — 35W TDP **Industrial Versions** AMD EPYC Embedded 3000 Model 3255 — 8 Cores / 16 Threads — Single Die — 2.5 / 3.10 GHz — 32 MB cache — 55W TDP
DRAM	Up to 3 SO-DIMM sockets for DDR4 memory modules up to 32 GByte each (96 GByte total) with 2666 MT/s ECC and non-ECC supported
Chipset	Integrated in SoC
Ethernet	4x 10GbE with KR interface support 1x Gigabit Ethernet
I/O Interfaces	32x PCI Express™ Gen 3.0 lanes max. | 4x USB 3.1 Gen 1 | 4x USB 2.0 | 2x SATA III (6Gb/s) | LPC | SPI | 2x UART | SMBus
Storage	Up to 1 TByte onboard NVMe storage
congatec Board Controller	Multi Stage Watchdog | non-volatile User Data Storage | Manufacturing and Board Information | Board Statistics I²C bus (fast mode, 400 kHz, multi-master) | Power Loss Control | Hardware Health Monitoring | POST Code redirection
Embedded BIOS Features	OEM Customization | Flash Update | based on AMI Aptio UEFI
Security	Trusted Platform Module (TPM 2.0), Secure Root of Trust, Secure Memory Encryption, Secure Encrypted Virtualization
Power Management	ACPI 5.0 with battery support Operating Systems
Operating Systems	Windows 10 (64 Bit) | Windows Server 2016 (64 Bit) | Linux (Ubuntu 18.04, Ubuntu 19.04, Fedora 30) 64 Bit
Power Consumption	See user's guide for full details
Temperature	Industrial: Operating: -40 to +85°C — Storage: -40 to +85°C Commercial: Operating: 0 to +60°C — Storage: -40 to +85°C
Extended Temperature	Screening service on request: -25 to +80°C (burn-in & cold-soak) -40 to +85°C (burn-in & cold-soak)
Humidity	Operating: 10 - 90% r. H. non cond. — Storage: 5 - 95% r. H. non cond.
Size	95 x 125 mm (3.74" x 4.92")


conga-B7E3
COM Express Rev. 3.0, Basic Size, Type 7 Pinout
Dual Die CPU
Die 0
Die 1
PCIe 0-1
PCIe 16-31
PCIe 16-31
PCIe 4-5
PCIe 6-7
PCIe 2
PCIe 8-11
SATA Port 0 - 1
PCIe lane 0 - 15
PCIe lane 16 - 31
Ethernet 10G 0 - 1
Ethernet 10G 2 - 3
Ethernet
Ethernet 10/100/1000
Intel i210
3x DDR4 2666
ECC / non ECC SO-DIMM
up to 32 GB each
SSD
Single Die CPU
Die 0
PCIe 0-1
PCIe 10-15
PCIe 8-9
PCIe 3
PCIe 16-31
PCIe 4-5
PCIe 6-7
PCIe 2
optional
SATA Port 0 - 1
PCIe lane 0 - 5
PCIe lane 6 - 7
PCIe lane 8 - 9
PCIe lane 10 - 11
PCIe lane 12
PCIe lane 13
PCIe lane 14 - 15
PCIe lane 16 - 31
2x DDR4 2666
ECC / non ECC SO-DIMM
up to 32 GB each
optional
optional
optional
Ethernet 10G 0 - 1
Ethernet 10G 2 - 3
Ethernet
Ethernet 10/100/1000
Intel i210
AMD
EPYC embedded 3000
Processor
USB 2.0
USB 3.1
SPI
LPC
I2C
USB 2.0 Lanes 0 - 3
USB 3.0 Lanes 0 - 3
SPI
LPC
TPM
SPI Flash
MGMNT
SM Bus
UART 0-1
Switch
congatec
Board
Controller
LPC
GPIO
I2C
UART
SM Bus
FAN
optional
GPIO
I2C Bus
SER0/1
SM Bus
FAN

conga-B7E3 | Order Information – COM Express® Module

Article	PN	Description
conga-B7E3/3451	048600	COM Express Type 7 Basic module based on AMD embedded EPYC 3451 16-core processor (dual die) with 2.15GHz up to 3.0 GHz turbo boost, 32MB L3 cache and quad channel DDR4 2666 MT/s memory interface (formerly Snowy Owl).
conga-B7E3/3351	048602	COM Express Type 7 Basic module based on AMD embedded EPYC 3351 12-core processor (dual die) with 1.9GHz up to 3.0 GHz turbo boost, 32MB L3 cache and quad channel DDR4 2666 MT/s memory interface (formerly Snowy Owl).
conga-B7E3/i-3255	048604	COM Express Type 7 Basic module based on AMD embedded EPYC 3255 8-core processor (single die) with 2.5GHz up to 3.1 GHz turbo boost, 16MB L3 cache and dual channel DDR4 2666 MT/s memory interface (formerly Snowy Owl).
conga-B7E3/3251	048605	COM Express Type 7 Basic module based on AMD embedded EPYC 3251 8-core processor (single die) with 2.5GHz up to 3.1 GHz turbo boost, 16MB L3 cache and dual channel DDR4 2666 MT/s memory interface (formerly Snowy Owl).
conga-B7E3/3201	048606	COM Express Type 7 Basic module based on AMD embedded EPYC 3201 8-core processor (single die) with 1.5GHz up to 3.1 GHz turbo boost, 16MB L3 cache and dual channel DDR4 2133 MT/s memory interface (formerly Snowy Owl).
conga-B7E3/3151	048607	COM Express Type 7 Basic module based on AMD embedded EPYC 3151 4-core processor (single die) with 2.7GHz up to 2.9 GHz turbo boost, 16MB L3 cache and dual channel DDR4 2666 MT/s memory interface (formerly Snowy Owl).
conga-B7E3/3101	048608	COM Express Type 7 Basic module based on AMD embedded EPYC 3101 4-core processor (single die) with 2.1GHz up to 2.9 GHz turbo boost, 8MB L3 cache and dual channel DDR4 2666 MT/s memory interface (formerly Snowy Owl).

conga-B7E3 | Order Information – Accessory

Article	PN	Description
conga-B7E3/HSP-HP-B	048652	Standard heat spreader for high performance COM Express Type 7 module conga-B7E3 with integrated heat pipes. All stand-offs are bore hole. Suitable for all single die variants.
conga-B7E3/HSP-HP-T	048653	Standard heat spreader for high performance COM Express Type 7 module conga-B7E3 with integrated heat pipes. All stand-offs are M2.5 threaded. Suitable for all single die variants.
conga-B7E3/SP4-HSP-HP-B	048656	Standard heat spreader for high performance COM Express Type 7 module conga-B7E3 with integrated heat pipes. All stand-offs are bore hole. Suitable for all dual die variants.
conga-B7E3/SP4-HSP-HP-T	048657	Standard heat spreader for high performance COM Express Type 7 module conga-B7E3 with integrated heat pipes. All stand-offs are M2.5 threaded. Suitable for all dual die variants.
conga-B7E3/HPA	048660	Heat pipe Adapter for conga-B7E3 COM Express Type 7 module. This adapter can be used in combination with standard 8 mm heat pipes to optimize heat distribution. Suitable for all single die variants.
conga-B7E3/HPA SP4	048662	Heat pipe Adapter for conga-B7E3 COM Express Type 7 module. This adapter can be used in combination with standard 8 mm heat pipes to optimize heat distribution. Suitable for all dual die variants.
DDR4-SODIMM-2666 (4GB)	067780	DDR4 SODIMM memory module with 2666 MT/s and 4GB RAM
DDR4-SODIMM-2666 (8GB)	067781	DDR4 SODIMM memory module with 2666 MT/s and 8GB RAM
DDR4-SODIMM-2666 (16GB)	067782	DDR4 SODIMM memory module with 2666 MT/s and 16GB RAM
DDR4-SODIMM-2666 (32GB)	068806	DDR4 SODIMM memory module with 2666 MT/s and 32GB RAM
DDR4-SODIMM-2666 ECC (4GB)	067783	DDR4 ECC SODIMM memory module with 2666 MT/s and 4GB RAM
DDR4-SODIMM-2666 ECC (8GB)	067784	DDR4 ECC SODIMM memory module with 2666 MT/s and 8GB RAM
DDR4-SODIMM-2666 ECC (16GB)	067785	DDR4 ECC SODIMM memory module with 2666 MT/s and 16GB RAM
DDR4-SODIMM-2666 ECC (32GB)	068805	DDR4 ECC SODIMM memory module with 2666 MT/s and 32GB RAM
DDR4-SODIMM-2666 (4GB) / i-temp	068819	Industrial DDR4 SODIMM memory module with 2666 MT/s and 4GB RAM
DDR4-SODIMM-2666 (8GB) / i-temp	068820	Industrial DDR4 SODIMM memory module with 2666 MT/s and 8GB RAM
DDR4-SODIMM-2666 (16GB) / i-temp	068821	Industrial DDR4 SODIMM memory module with 2666 MT/s and 16GB RAM
DDR4-SODIMM-2666 (32GB) / i-temp	068807	Industrial DDR4 SODIMM memory module with 2666 MT/s and 32GB RAM
DDR4-SODIMM-2666 ECC (4GB) / i-temp	068822	Industrial DDR4 ECC SODIMM memory module with 2666 MT/s and 4GB RAM
DDR4-SODIMM-2666 ECC (8GB) / i-temp	068823	Industrial DDR4 ECC SODIMM memory module with 2666 MT/s and 8GB RAM
DDR4-SODIMM-2666 ECC (16GB) / i-temp	068824	Industrial DDR4 ECC SODIMM memory module with 2666 MT/s and 16GB RAM
DDR4-SODIMM-2666 ECC (32GB) / i-temp	068808	Industrial DDR4 ECC SODIMM memory module with 2666 MT/s and 32GB RAM
conga-X7EVAL	065420	Evaluation Carrier Board for COM Express Type 7 modules with up to four 10GbE SFP+ fiber/copper ports implemented via Intel Cortina 10GbE Phy's. The carrier features an Aspeed AST2500 Board Management Controller (BMC).

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