EMBEDDED COM EXPRESS® TYPE 6
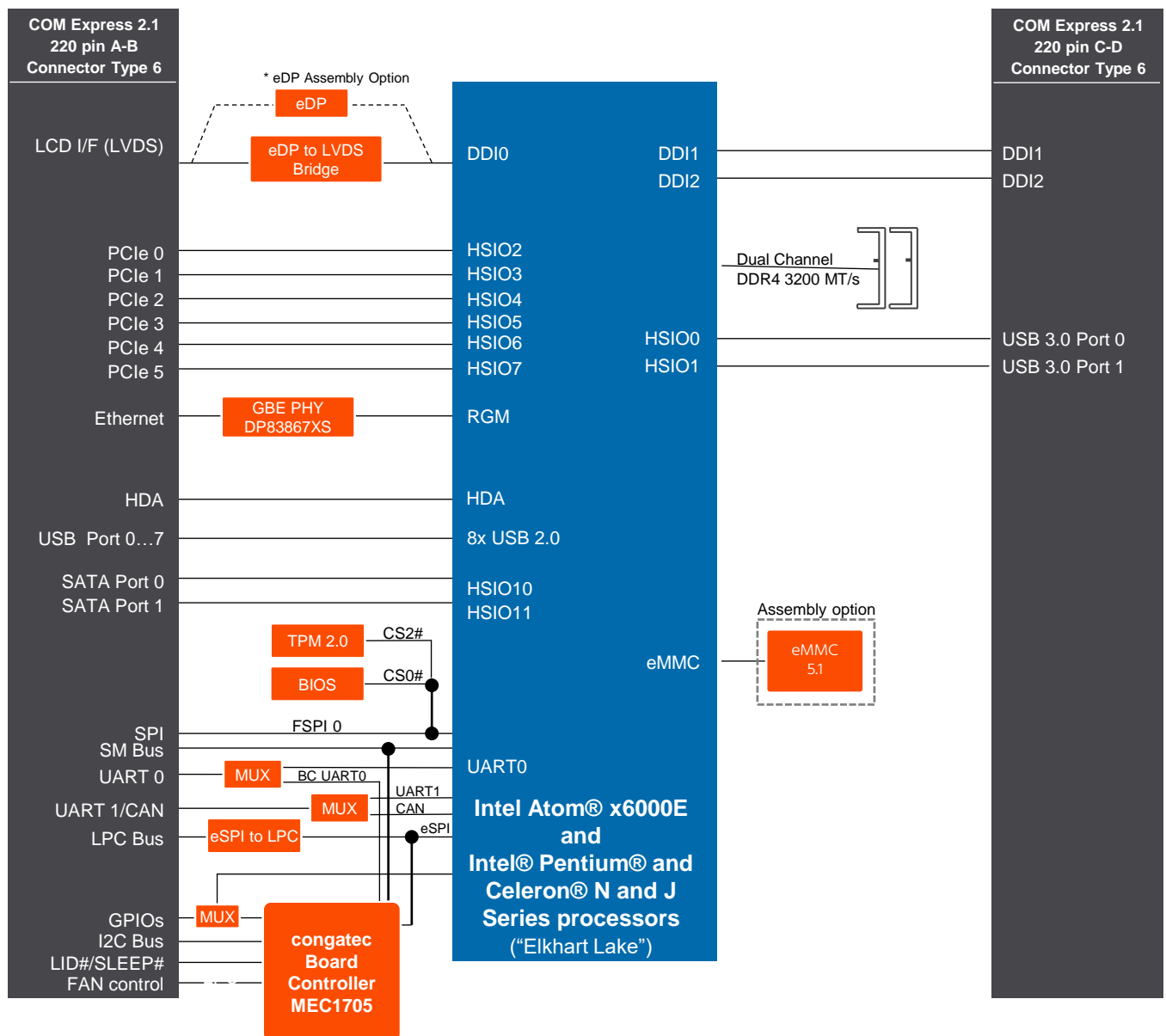
conga-TCA7

COM ✦ Express®

- ⬡ COM Express Type 6 Compact based on Intel Atom® x6000E Series and Intel® Pentium® and Celeron® J and N Series processors
- ⬡ High performance Intel® UHD Graphics for 10th Gen Intel® Processors
- ⬡ Up to 3.200 MT/s DDR4 SODIMM Memory Support
- ⬡ Options for Time Sensitive Networking and Time Coordinated Computing for improved Realtime Capability
- ⬡ Options for Industrial Temperature Range -40°C to 85°C

Form Factor	COM Express® Compact	Type 6	(95 x 95 mm)				
CPU	Processor	TDP	Cores/Threads	Base Frequ./Turbo	Gen 11 Gfx	Intel Use Condition
	J6413	10W	4 / 4	1.8 GHz / 3.0 GHz	16 EU	PC Client
	J6426	10W	4 / 4	2.0 GHz / 3.0 GHz	32 EU	PC Client
	x6211E	6W	2 / 2	1.3 GHz / 3.0 GHz	16 EU	Embedded
	x6413E	9W	4 / 4	1.5 GHz / 3.0 GHz	16 EU	Embedded
	x6425E	12W	4 / 4	2.0 GHz / 3.0 GHz	32 EU	Embedded
	x6212RE	6W	2 / 2	1.2 GHz / ---	16 EU	Industrial
	x6414RE	9W	4 / 4	1.5 GHz / ---	16 EU	Industrial
	x6425RE	12W	4 / 4	1.9 GHz / ---	32 EU	Industrial

DRAM	Support for 2x SO DIMM on socket (dual channel DDR4 3.200 MT/s)	max. 32 GB RAM system capacity
Ethernet	Intel® GbE with TSN support	real-time trigger
I/O Interfaces	Up to 6x PCIe Gen3	2x USB 3.1 Gen2	up to 8x USB 2.0	2x SATA III	2x UART (UART1 muxed with CAN)	GPIO	I²C Bus	SMBus	SPI	LPC
Mass Storage	Option for onboard eMMC 5.1 flash up to 128 Gbyte
Audio	Intel® HD Audio
Graphics	Intel® UHD Graphics
LVDS	Dual channel 18/24-bit LVDS interface up to 1920x1200@60Hz	shared with eDP up to 3840x2160@60Hz (option)
Digital Display Interface	2x DisplayPort 1.4 4096x2160@60Hz
congatec Board controller	Multistage watchdog	non-volatile user data storage	manufacturing and board Information	board statistics	fast mode and multi-master I²C bus	power loss control
Embedded BIOS Feature	AMI Aptio® UEFI firmware	32 MByte serial SPI with congatec Embedded BIOS features	OEM Logo	OEM CMOS Defaults	LCD Control	Display Auto Detection	Backlight Control	Flash Update
Power Management	ACPI 5 .0 compliant	Smart Battery Management
Operating Systems	Microsoft® Windows 11 IoT Enterprise	Microsoft® Windows 10	Microsoft® Windows 10 IoT Enterprise	Linux	Yocto
Hypervisor	RTS Real-Time Hypervisor
Power Consumption	Typ. Application: see manual for full details
Temperature Range	Commercial variants — Operation: 0° to +60°C — Storage: -20° to +80°C Industrial variants — Operation: -40° to +85°C — Storage: -40° to +85°C
Humidity	Operation: 10% to 85% r. H. non cond. Storage: 5% to 85% r. H. non cond.
Size	95 x 95 mm (approx. 3.74" x 3.74")

⬡ congatec

conga-TCA7 | Block Diagram

COM Express 2.1
220 pin A-B
Connector Type 6

* eDP Assembly Option

eDP

LCD I/F (LVDS) — eDP to LVDS Bridge — DDI0

DDI1
DDI2 — DDI1
DDI2

PCIe 0 — HSIO2
PCIe 1 — HSIO3
PCIe 2 — HSIO4
PCIe 3 — HSIO5
PCIe 4 — HSIO6
PCIe 5 — HSIO7

Dual Channel
DDR4 3200 MT/s

HSIO0 — USB 3.0 Port 0
HSIO1 — USB 3.0 Port 1

Ethernet — GBE PHY DP83867XS — RGM

HDA — HDA
USB Port 0…7 — 8x USB 2.0

SATA Port 0 — HSIO10
SATA Port 1 — HSIO11

TPM 2.0 — CS2#
BIOS — CS0#

Assembly option

eMMC — eMMC 5.1

SPI — FSPI 0
SM Bus
UART 0 — MUX — BC UART0 — UART0
UART 1/CAN — MUX — UART1 CAN
LPC Bus — eSPI to LPC — eSPI

Intel Atom® x6000E
and
Intel® Pentium® and
Celeron® N and J
Series processors
("Elkhart Lake")

GPIOs — MUX
I2C Bus
LID#/SLEEP#
FAN control

congatec Board Controller MEC1705

COM Express 2.1
220 pin C-D
Connector Type 6

Note: Assembly options on request only

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conga-TCA7 | Order Information

Article	PN	Description
conga-TCA7/x6425E	049300	COM Express Compact module with Intel Atom® x6425E quad core processor with 2.0GHz core frequency up to 3.0GHz, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support
conga-TCA7/x6413E	049301	COM Express Compact module with Intel Atom® x6413E quad core processor with 1.5GHz core frequency up to 3.0GHz, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support
conga-TCA7/x6211E	049302	COM Express Compact module with Intel Atom® x6211E dual core processor with 1.3GHz core frequency up to 3.0GHz, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support
conga-TCA7/i-x6425RE	049310	COM Express Compact module with Intel Atom® x6425RE quad core processor with 1.9GHz core frequency, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support. Industrial grade temperature range from -40°C to 85°C.
conga-TCA7/i-x6414RE	049311	COM Express Compact module with Intel Atom® x6414RE quad core processor with 1.5GHz core frequency, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support. Industrial grade temperature range from -40°C to 85°C.
conga-TCA7/i-x6212RE	049312	COM Express Compact module with Intel Atom® x6212RE dual core processor with 1.2GHz core frequency, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support. Industrial grade temperature range from -40°C to 85°C.
conga-TCA7/J6426	049320	COM Express Compact module with Intel® Pentium® J6426 quad core processor with 2.0GHz core frequency up to 3.0GHz, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support.
conga-TCA7/J6413	049321	COM Express Compact module with Intel® Celeron® J6413 quad core processor with 1.8GHz core frequency up to 3.0GHz, 1.5MB cache and up to 32GB 3200MT/s DDR4 SODIMM memory support
conga-TCA7/i-HSP-B	049350	Standard heatspreader for COM Express Compact module conga-TCA7 with lidded Intel Atom x6000E processors. All standoffs are with 2.7mm bore hole.
conga-TCA7/i-HSP-T	049351	Standard heatspreader for COM Express Compact module conga-TCA7 with lidded Intel Atom x6000E processors. All standoffs are M2.5mm thread.
conga-TCA7/i-CSP-B	049352	Passive cooling solution for COM Express Compact module conga-TCA7 with lidded Intel Atom x6000E processors. All standoffs are with 2.7mm bore hole.
conga-TCA7/i-CSP-T	049353	Passive cooling solution for COM Express Compact module conga-TCA7 with lidded Intel Atom x6000E processors. All standoffs are M2.5mm thread.
conga-TCA7/HSP-B	049354	Standard heatspreader for COM Express Compact module conga-TCA7 with open silicon Intel Pentium/Celeron J and N processors. All standoffs are with 2.7mm bore hole.
conga-TCA7/HSP-T	049355	Standard heatspreader for COM Express Compact module conga-TCA7 with open silicon Intel Pentium/Celeron J and N processors. All standoffs are M2.5mm thread.
conga-TCA7/CSP-B	049356	Passive cooling solution for COM Express Compact module conga-TCA7 with open silicon Intel Pentium/Celeron J and N processors. All standoffs are with 2.7mm bore hole.
conga-TCA7/CSP-T	049357	Passive cooling solution for COM Express Compact module conga-TCA7 with open silicon Intel Pentium/Celeron J and N processors. All standoffs are M2.5mm thread.

Article	PN	Description
DDR4-SODIMM-3200 (4GB)	068793	DDR4 SODIMM memory module with up to 3200 MT/s and 4GB RAM, commercial temp 0°C to +60°C
DDR4-SODIMM-3200 (8GB)	068794	DDR4 SODIMM memory module with up to 3200 MT/s and 8GB RAM, commercial temp 0°C to +60°C
DDR4-SODIMM-3200 (16GB)	068798	DDR4 SODIMM memory module with up to 3200 MT/s and 16GB RAM, commercial temp 0°C to +60°C
DDR4-SODIMM-3200 (4GB) / i-temp	068825	DDR4 SODIMM memory module with up to 3200 MT/s and 4GB RAM, industrial temp -40°C to +85°C
DDR4-SODIMM-3200 (8GB) / i-temp	068826	DDR4 SODIMM memory module with up to 3200 MT/s and 8GB RAM, industrial temp -40°C to +85°C
DDR4-SODIMM-3200 (16GB) / i-temp	068827	DDR4 SODIMM memory module with up to 3200 MT/s and 16GB RAM, industrial temp -40°C to +85°C
DDR4-SODIMM-3200 (32GB) / i-temp	068837	DDR4 SODIMM memory module with up to 3200 MT/s and 32GB RAM, industrial temp -40°C to +85°C