EMBEDDED COM EXPRESS® TYPE 6
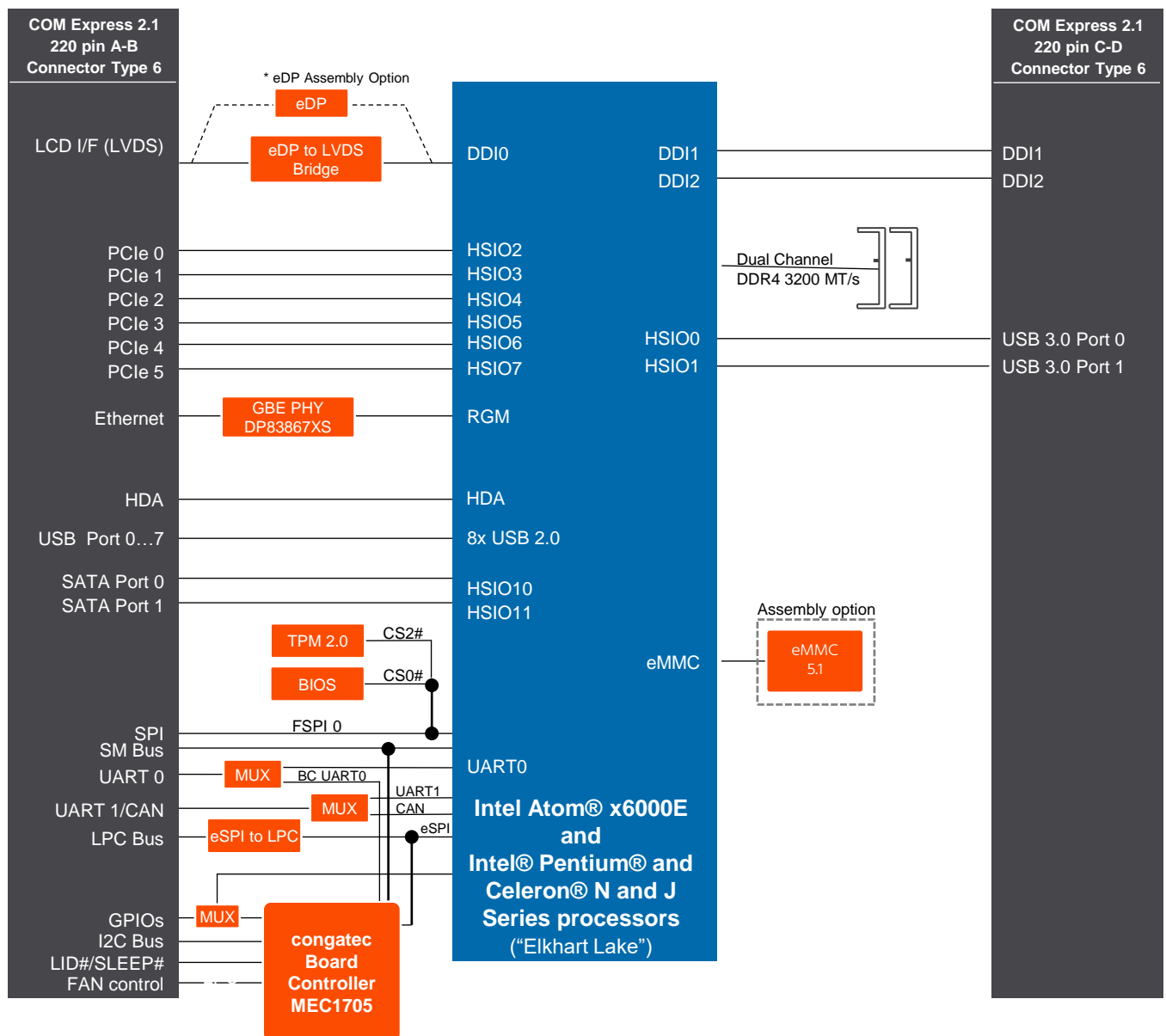
conga-TCA7

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 upon request	Microsoft® Windows 11 IoT Enterprise upon request	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")					

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intel partner Titanium

conga-TCA7 | Block Diagram

COM Express 2.1
220 pin A-B
Connector Type 6

COM Express 2.1
220 pin C-D
Connector Type 6

* eDP Assembly Option

eDP

eDP to LVDS Bridge

LCD I/F (LVDS)

DDI0

DDI1
DDI2

DDI1
DDI2

PCIe 0
PCIe 1
PCIe 2
PCIe 3
PCIe 4
PCIe 5

HSIO2
HSIO3
HSIO4
HSIO5
HSIO6
HSIO7

Dual Channel
DDR4 3200 MT/s

HSIO0
HSIO1

USB 3.0 Port 0
USB 3.0 Port 1

Ethernet

GBE PHY
DP83867XS

RGM

HDA

HDA

USB Port 0…7

8x USB 2.0

SATA Port 0
SATA Port 1

HSIO10
HSIO11

Assembly option

TPM 2.0

CS2#

eMMC
5.1

BIOS

CS0#

eMMC

SPI
SM Bus

FSPI 0

UART0

UART 0

MUX

BC 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

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Board
Controller
MEC1705

LID#/SLEEP#
FAN control

Note: Assembly options on request only

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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