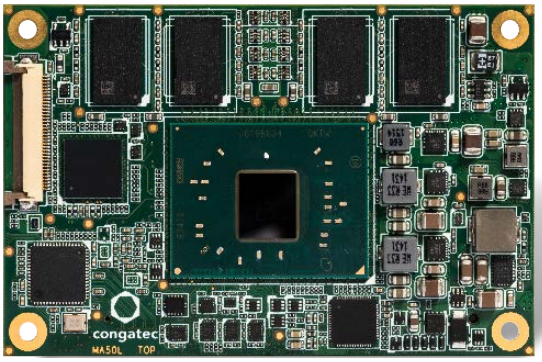
POWERFUL AND SMALL

conga-MA5

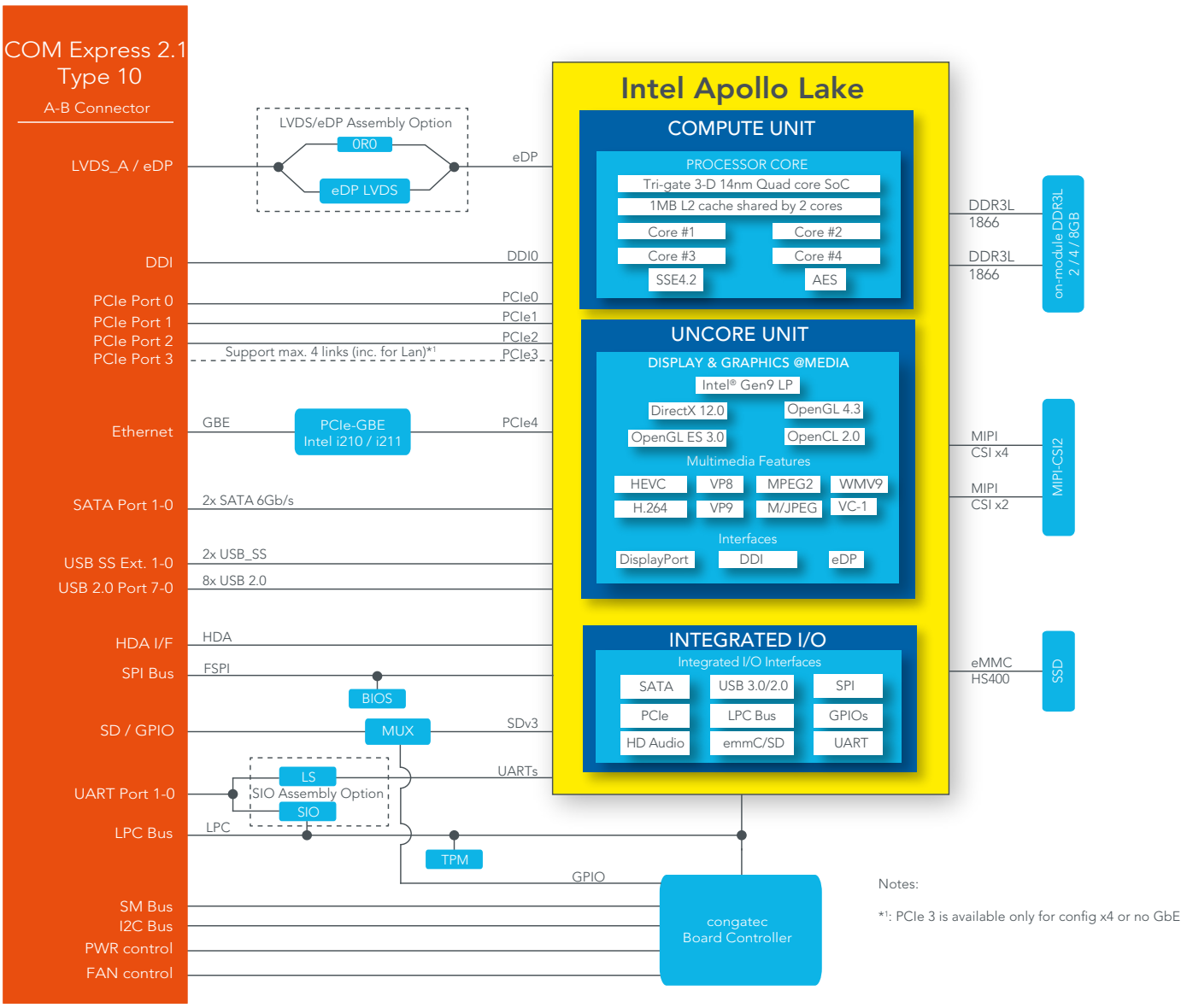


- 5th Gen. Intel® Atom™ processor family
- COM Express Mini Type 10 module
- Intel 9th generation (Gen 9) LP graphics
- Up to 4k resolution (4096x2160@60Hz)
- 4K Codec Decode & Encode for HEVC, H.264, VP8

COM Express®

Formfactor	Formfactor COM Express® Mini | (55 x 84 mm) | Type 10				
CPU	Intel® Pentium® N4200	2.50 GHz (Burst) | 1.1 GHz Clock	Quad Core	L2 cache 2MB	6W TDP
	Intel® Celeron® N3350	2.40 GHz (Burst) | 1.1 GHz Clock	Dual Core	L2 cache 2MB	6W TDP
	Intel® Atom™ x7-E3950	2.00 GHz (Burst) | 1.6 GHz Clock	Quad Core	L2 cache 2MB	12W TDP
	Intel® Atom™ x5-E3940	1.80 GHz (Burst) | 1.6 GHz Clock	Quad Core	L2 cache 2MB	9.5W TDP
	Intel® Atom™ x5-E3930	1.80 GHz (Burst) | 1.3 GHz Clock	Dual Core	L2 cache 2MB	6.5W TDP
DRAM	Dual channel onboard DDR3L memory support for up to 8 GByte at 1866MT/s				
Chipset	Integrated in SoC				
Ethernet	Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller				
I/O Interfaces	4x PCIe Gen2 | 2x USB 3.0/2.0 | 6x USB 2.0 | 2x SATA3 | SDIO | LPC Bus | SMBus | I2C Bus | 2x UART				
Onboard storage	eMMC 5.0 interface up to 128GB				
Sound	Intel® High Definition Audio (Intel® HD Audio)				
Graphics	Intel® HD Graphics 500 with support for 4k Ultra HD displays | DirectX 12 | OpenGL 4.4 | OpenCL 2.0 | OpenGL ES 3.0 | HDCP 1.4 (wired), HDCP 2.0 (wireless) | Video decode hardware acceleration including support for 4kp60 HEVC (H.265), H.264, MVC, VP8, VP9, VC-1, WMV9, JPEG/MJPEG | Video encode hardware acceleration including support for 4kp30 HEVC (H.265), H.264, MVC, VP8, JPEG/MJPEG.				
LVDS	18/24-bit Single Channel LVDS Interface, resolutions up to 1280X1024@60Hz | VESA standard or JEIDA data mapping Automatic Panel Detection via EDID/EPI | shared with eDP 1.3 supporting up to 3840x2160@60 Hz (option)				
Digital Display Interface	DisplayPort 1.2 up to 4096×2160@60Hz or DDI up to 3840×2160@60Hz				
congatec Board Controller	Multistage watchdog | non-volatile user data storage | manufacturing and board Information | board statistics I²C bus (fast mode | 400 kHz | multi master) | power loss control				
Embedded BIOS Features	AMI Aptio® UEFI 2.x firmware | 8 MByte serial SPI with congatec Embedded BIOS features OEM Logo | OEM CMOS Defaults | LCD Control Display Auto Detection | Backlight Control | Flash Update				
TPM	Infineon's Trusted Platform Module (TPM 2.0/1.2) SLB 9665/9660 option				
Power Management	ACPI 5 .0 compliant | Smart Battery Management				
Operating Systems	Microsoft® Windows 10 | Microsoft® Windows 10 IoT Enterprise | Microsoft® Windows 10 IoT Core | Linux | Yocto | Android				
Power Consumption	Typ. application 6W...12W				
Temperature	Commercial :	Operating: 0 to +60°C	Storage: -20 to +70°C		
	Industrial:	Operating: -40 to +85°C	Storage: -40 to +85°C		
Humidity	Operating:	10 to 90% r. H. non cond.			
	Storage:	5 to 95% r. H. non cond.			
Size	55 x 84 mm (2.17" x 3.31")				

conga-MA5 | Block diagram



Notes:

*1: PCIe 3 is available only for config x4 or no GbE

conga-MA5 | Order Information

Article	PN	Description
conga- MA5/E3950-8G eMMC32	048000	COM Express Mini Type10 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz 2MB L2 cache | 8GB 1866MT/s DDR3L onboard memory and 32GB eMMC onboard flash.
conga-MA5/E3940-4G eMMC16	048001	COM Express Mini Type10 module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz 2MB L2 cache | 4GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash.
conga- MA5/E3930-2G eMMC16	048002	COM Express Mini Type10 module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz 2MB L2 cache | 2GB 1833MT/s DDR3L onboard memory and 16GB eMMC onboard flash.
conga- MA5/i-E3950-8G eMMC16	048010	COM Express Mini Type10 module with Intel® Atom™ x7-E3950 quad core processor with 1.6GHz core frequency up to 2.0GHz 2MB L2 cache | 8GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga- MA5/i-E3940-4G eMMC16	048011	COM Express Mini Type10 module with Intel® Atom™ x5-E3940 quad core processor with 1.6GHz core frequency up to 1.8GHz 2MB L2 cache | 4GB 1866MT/s DDR3L onboard memory and 16GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga- MA5/i-E3930-4G eMMC16	048012	COM Express Mini Type10 module with Intel® Atom™ x5-E3930 dual core processor with 1.3GHz core frequency up to 1.8GHz 2MB L2 cache | 4GB 1833MT/s DDR3L onboard memory and 16GB eMMC onboard flash. Industrial grade temperature range from -40°C to 85°C.
conga- MA5/N4200-8G eMMC32	048020	COM Express Mini Type10 module with Intel® Pentium® N4200 quad core processor with 1.1GHz core frequency up to 2.50GHz 2MB L2 cache | 8GB 1866MT/s DDR3L onboard memory and 32GB eMMC onboard flash.
conga- MA5/N3350-4G eMMC16	048022	COM Express Mini Type10 module with Intel® Celeron™ N3350 dual core processor with 1.1GHz core frequency up to 2.4GHz 2MB L2 cache | 4GB 1600MT/s DDR3L onboard memory and 16GB eMMC onboard flash.

Coolings		
conga- MA5/i-CSP-T	048050	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga- MA5/i-CSP-B	048051	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga- MA5/i-HSP-T	048052	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga- MA5/i-HSP-B	048053	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga- MA5/CSP-T	048054	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga- MA5/CSP-B	048055	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
conga- MA5/HSP-T	048056	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga- MA5/HSP-B	048057	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.

Accessories		
conga-MEVAL	065400	Evaluation carrier board for Type 10 COM Express modules
conga-LDVI/EPI	011115	LVDS to DVI converter board for digital flat panels with onboard EEPROM

This Datasheet should be read in conjunction with "Errata sheet - congatec xA5 designs", available in the document section of congatec's webportal.

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