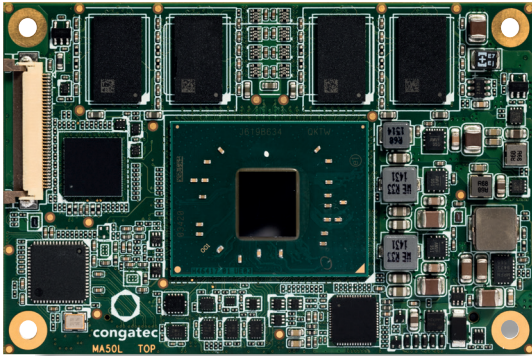


# POWERFUL AND SMALL

## conga-MA5

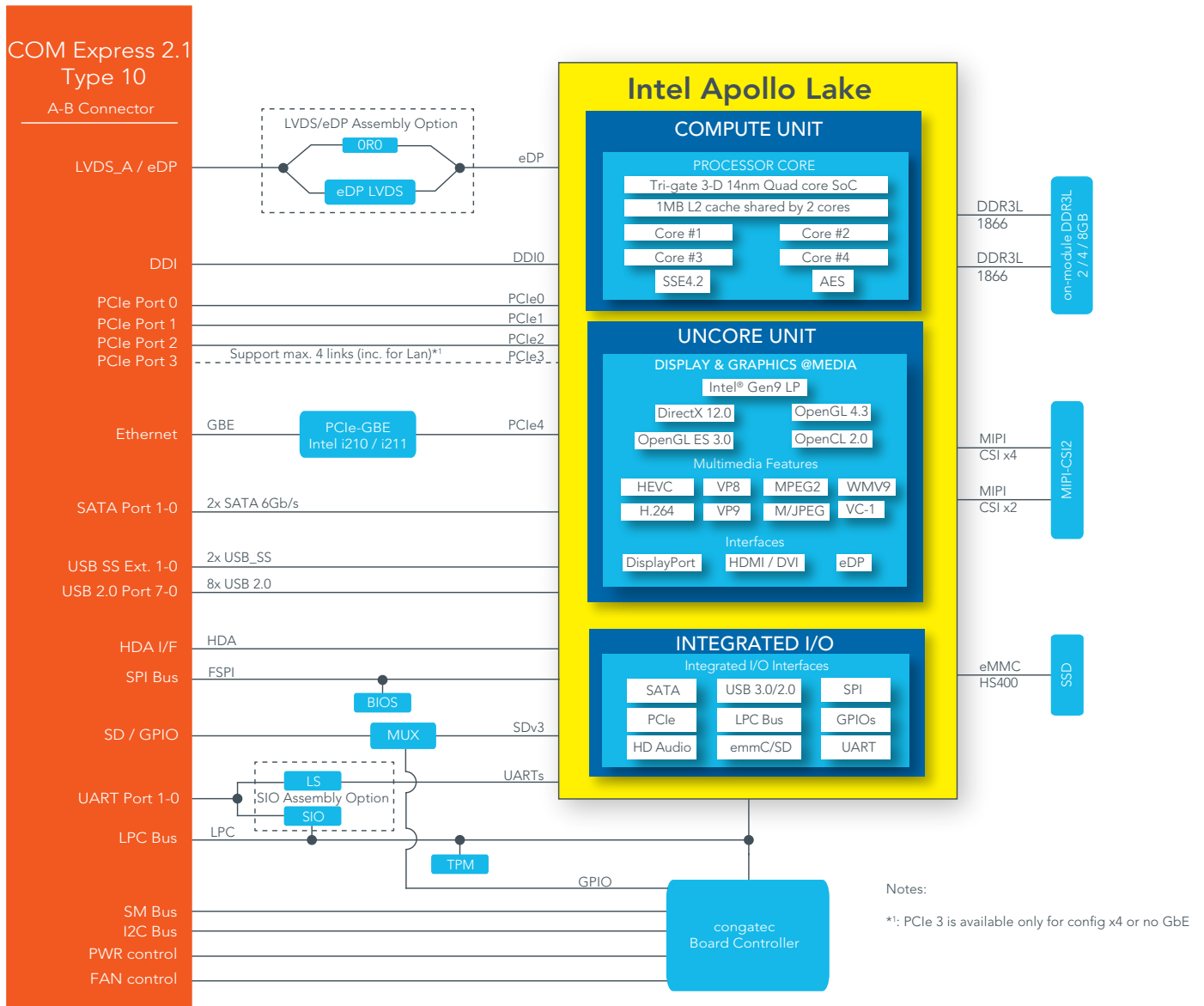


- 5<sup>th</sup> Gen. Intel® Atom™ processor family
- COM Express Mini Type 10 module
- Intel 9th generation (Gen 9) LP graphics
- Up to 4k resolution (4096x2160@60Hz)
- 4K Codec Decode & Encode for HEVC, H.264, VP8



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 4096x2160@60Hz or HDMI 1.4b up to 3840x2160@60Hz					
congatec Board Controller	Multistage 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					
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



# 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
COM-Express-carrier-board-Socket-5	400007	Connector for COM-Express carrier boards   height 5mm   packing unit 4 pieces
COM-Express-carrier-board-Socket-8	400004	Connector for COM-Express carrier boards   height 8mm   packing unit 4 pieces

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