

# COMh-caAP

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## COM HPC/Client module size A with 12th Generation Intel® Core™ Processors

- ▶ Up to 64 GByte DDR5 memory
- ▶ Up to 2.5Gb Ethernet with TSN support
- ▶ Optional NVMe SSD onboard
- ▶ Industrial grade versions planned

POSSIBILITIES START HERE



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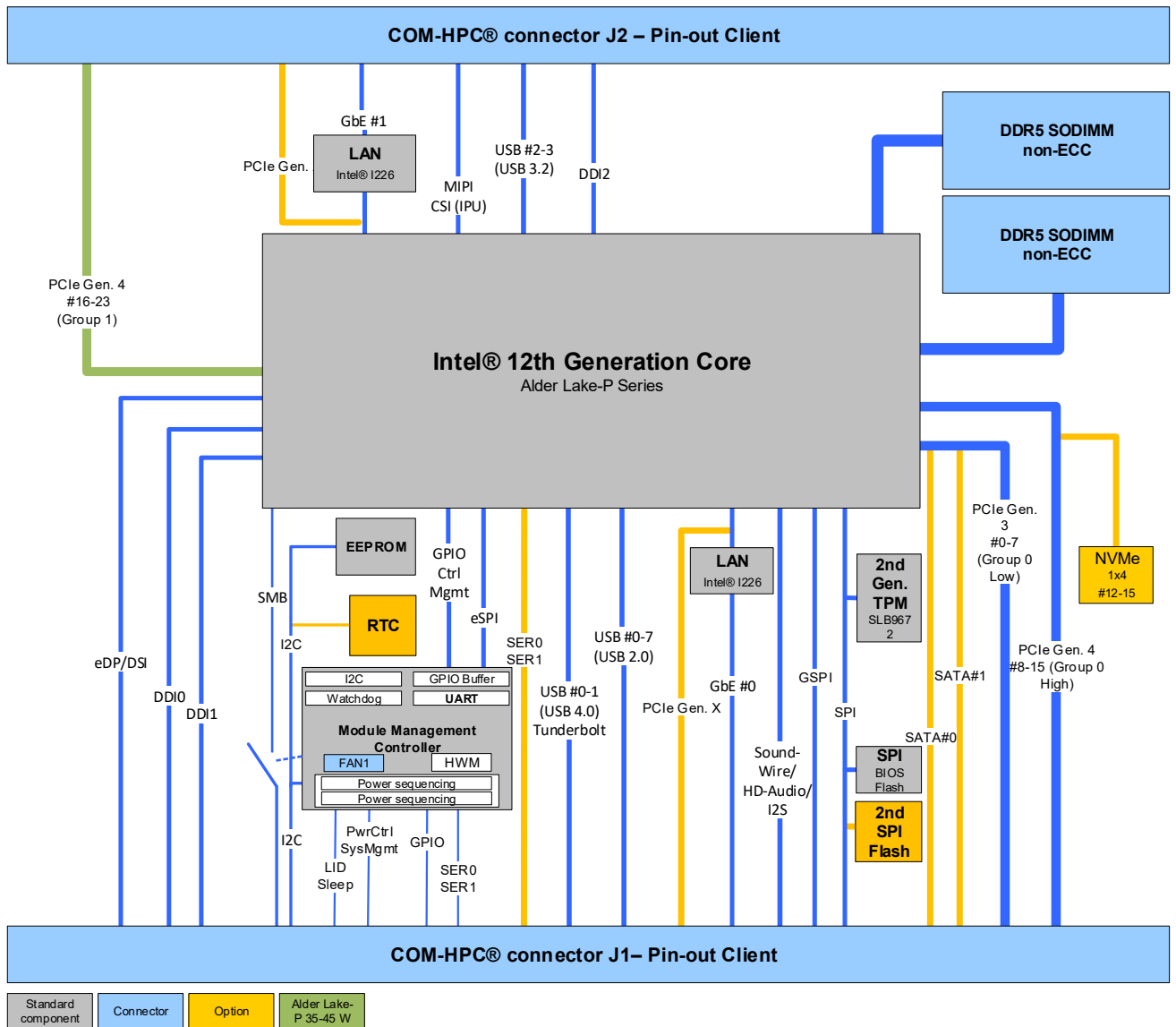
## ▶ TECHNICAL INFORMATION

COMPLIANCE	COM HPC® Client 2x 400 pin connector
DIMENSIONS (H x W)	95 x 120 mm
CPU	Intel® 12th Generation Core™ family For details see table (CPU variants) given below
CHIPSET	Intel® 600/700 Series Chipset Family - On-Package Platform Controller Hub
MAIN MEMORY	2x DDR5 SODIMM dual channel up to 32 GByte ECC or non ECC
GRAPHICS CONTROLLER	Intel® Iris XeGraphics architecture with up to 96 EUs, 4 Independent Displays (up to 8K)
ETHERNET CONTROLLER	Intel® i226
ETHERNET	Up to 2x 2.5 Gb Ethernet with TSN & WOL support (depending on SKU)
STORAGE	2x SATA 6Gb/s
FLASH ONBOARD	Up to 1 TByte NVMe SSD (on request)
PCI EXPRESS®	1x 8 PCIe Gen 4.0 (Alder Lake H-Series, 35-45 W) 2x 4 PCIe Gen 4.0 -> 1x4 shared with onboard NVMe 6+2x PCIe Gen 3.0 via HSIO (shared with SATA) Optional 1x PCIe for BMC
DISPLAY	DDI1: DP++, DDI2: DP++, DDI3: DP++, eDP (DSI, BIOS option), MIPI DSI
USB	2x USB 4.0/ Thunderbolt™; 2x USB 3.2; 8x USB 2.0
SERIAL	2x serial interface (RX/TX only)
AUDIO	4x Sound wire, I <sup>2</sup> S (HW option: Option HD Audio instead of 2x sound wire)
OTHER FEATURES	(G) SPI, SMB, Fast I <sup>2</sup> C, Staged Watchdog, RTC
SPECIAL FEATURES	Trusted Platform Module TPM 2.0
FEATURES ON REQUEST	vPRO (AMT/TXT/AES Support), up to 3x PCIe x1 additional w/o Ethernet & SATA, NVMe SSD, Fail Save via 2nd SPI Flash
POWER MANAGEMENT	ACPI 6.0
POWER SUPPLY	8.5 V – 20 V Wide Range, Single Supply Power
BIOS	AMI UEFI
OPERATING SYSTEM	Windows®10, Linux, VxWorks
TEMPERATURE	Commercial temperature: 0 °C to +60 °C operating, -30 °C to +85 °C non-operating Extended temperature (planned): -25 °C to +75 °C operating, -30 °C to +85 °C non-operating Industrial temperature (planned): -40 °C to +85 °C operating, -40 °C to +85 °C non-operating
HUMIDITY	93 % relative Humidity at 40 °C, non-condensing (according to IEC 60068-2-78)

## ▶ CPU VARIANTS

	12th GENERATION					
ALDER LAKE SERIES	H-SERIES			P-SERIES		
CPU	i7-12800HE	i5-12600HE	i3-12300HE	i7-1270PE	i5-1250PE	i3-1220PE
CORES	14	12	8	14	12	8
NUMBER OF P-CORES	6	4	4	6	4	4
FREQUENCY BASE /TURBO (P-CORES)	2.4/4.6 GHz	2.5/4.5 GHz	1.9/4.3 GHz	1.8/4.5 GHz	1.7/4.4 GHz	1.5/4.2 GHz
NUMBER OF E-CORES	8	8	4	8	8	4
FREQUENCY BASE /TURBO (E-CORES)	1.8/3.5 GHz	1.8/3.3 GHz	1.5/3.3 GHz	1.2/3.3 GHz	1.2/3.2 GHz	1.2/3.1 GHz
TDP	45/ 35 W	45/ 35 W	45/ 35 W	28/ 20 W	28/ 20 W	28/ 20 W
CACHE	24 MByte	18 Mbyte	12 Mbyte	24 MByte	12 MByte	12 Mbyte
IBECC	no	no	no	no	no	no
TCC/TSN	no	no	no	no	no	no

► BLOCK DIAGRAM



► VARIANTS

PART NO.	CPU	PCH	MEM. DOWN	SO-DIMM	FLASH	OP. TEMPERATURE
HCA01-0000-80-7	i7-12800HE	-		ECC	-	0 °C - 60 °C
HCA01-0000-60-5	i5-12600HE	-		ECC	-	0 °C - 60 °C
HCA01-0000-30-3	i3-12300HE	-		ECC	-	0 °C - 60 °C
HCA01-0000-70-7	i7-1270PE	-		ECC	-	0 °C - 60 °C
HCA01-0000-50-5	i5-1250PE	-		ECC	-	0 °C - 60 °C
HCA01-0000-20-3	i3-1220PE	-		ECC	-	0 °C - 60 °C

## ► CARRIER

ARTICLE	PART NO.	DESCRIPTION
COM-HPC CLIENT CARRIER 10MM	HCT01-0000-10-0	COM-HPC Client Carrier with 10mm Connector Height

## ► COOLING

ARTICLE	PART NO.	DESCRIPTION
HSP COMe-caAP CU-CORE THREADED	HCA01-0000-99-0	Heatspreader for COMe-caAP, Cu-core, threaded mounting holes
HSP COMe-caAP CU-CORE THROUGH	HCA01-0000-99-1	Heatspreader for COMe-caAP, Cu-core, through mounting holes
COMe ACTIVE UNI COOLER (W/O HSP)	36099-0000-99-0	COM Express® Universal Active Cooler for Heatspreader Mounting (87 x 78 x 14.3 mm) (for CPU's <20 W)
COMe PASSIVE UNI COOLER (W/O HSP)	36099-0000-99-1	COM Express® Universal Passive Cooler for Heatspreader Mounting (87 x 78 x 14.3 mm) (for CPU's <10 W)

## ► MEMORY

PART NO.	MIN. SPEC.	SIZE	ECC	OP. TEMPERATURE
9704X-3232-CAAP	DDR5-XXXX	32 GByte	no	0 °C - 60 °C
9704X-1632-CAAP	DDR5-XXXX	16 GByte	no	0 °C - 60 °C
9704X-0832-CAAP	DDR5-XXXX	8 GByte	no	0 °C - 60 °C
9704X-0432-CAAP	DDR5-XXXX	4 GByte	no	0 °C - 60 °C
9704X-3232-CAAP	DDR5-XXXX	32 GByte	no	-40 °C - 85 °C
9704X-1632-CAAP	DDR5-XXXX	16 GByte	no	-40 °C - 85 °C
9704X-0832-CAAP	DDR5-XXXX	8 GByte	no	-40 °C - 85 °C
9704X-0432-CAAP	DDR5-XXXX	4 GByte	no	-40 °C - 85 °C
9705X-3232-CAAP	DDR5-XXXX	32 GByte	yes	0 °C - 60 °C
9705X-1621-CAAP	DDR5-XXXX	16 GByte	yes	0 °C - 60 °C
9705X-0832-CAAP	DDR5-XXXX	8 GByte	yes	0 °C - 60 °C
9705X-0432-CAAP	DDR5-XXXX	4 GByte	yes	0 °C - 60 °C
9705X-3232-CAAP	DDR5-XXXX	32 GByte	yes	-40 °C - 85 °C
9705X-1632-CAAP	DDR5-XXXX	16 GByte	yes	-40 °C - 85 °C
9705X-0832-CAAP	DDR5-XXXX	8 GByte	yes	-40 °C - 85 °C
9705X-0432-CAAP	DDR5-XXXX	4 GByte	yes	-40 °C - 85 °C

## ► GLOBAL HEADQUARTERS

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