

COMh-ccAS



COM-HPC Client Size C module based on Intel® Alder Lake S processors family

- ▶ Up to 16 cores (TDP range: 35 W-65 W) & 24 threads
- ▶ Memory: Max 128 GByte DDR5 via 4x SODIMMs, ECC and non-ECC
- ▶ 16x PCIe Gen 5.0 lanes (for high performance CPUs) + 8x PCIe Gen 4.0 lanes + 6x PCIe Gen 3.0 lanes
- ▶ 3x DDI + 1x eDP

POSSIBILITIES START HERE

► TECHNICAL INFORMATION

COMPLIANCE	COM HPC® Size C Client
DIMENSIONS	160 x 120 mm
CPU (SoC)	Intel® Core™ "Alder Lake S" Processor Series For details see table "CPU variants" given below
CHIPSET	See table
MAIN MEMORY	2x DDR5 SODIMM for up to 64 GByte ECC / non ECC on request: 4x DDR5 SODIMM for up to 128 GByte ECC / non ECC
ETHERNET CONTROLLER	2x Intel® I226 or 1x Intel® I226, 1x integrated MAC with GPHY215
ETHERNET	2x 2.5 Gb Ethernet
STORAGE	2x SATA 6Gb/s
FLASH ONBOARD	-
PCI EXPRESS®	16x PCIe Gen 5.0 lanes (for high performance CPUs) + 8x PCIe Gen 4.0 lanes + 6x PCIe Gen 3.0 lanes
USB	4x (2x) USB 3.2
SERIAL	2x serial interface (RX/TX/CTS/RTS)
OTHER FEATURES	SPI, SMB, Fast I ² C, Staged Watchdog, RTC
SPECIAL FEATURES	TPM 2.0
FEATURES ON REQUEST	additional 3rd and 4th SODIMM socket
POWER MANAGEMENT	ACPI 6.0
POWER SUPPLY	12 V ATX and/or Single Supply Power
BIOS	AMI UEFI
OPERATING SYSTEM	Linux, Windows 11
TEMPERATURE	Commercial temperature: 0 °C to +60 °C operating -30 °C to +85 °C non-operating Optional E1: -25 °C to +75 °C operating -40 °C to +85 °C non-operating Optional E2 (with Screening) -40 °C to +78 °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

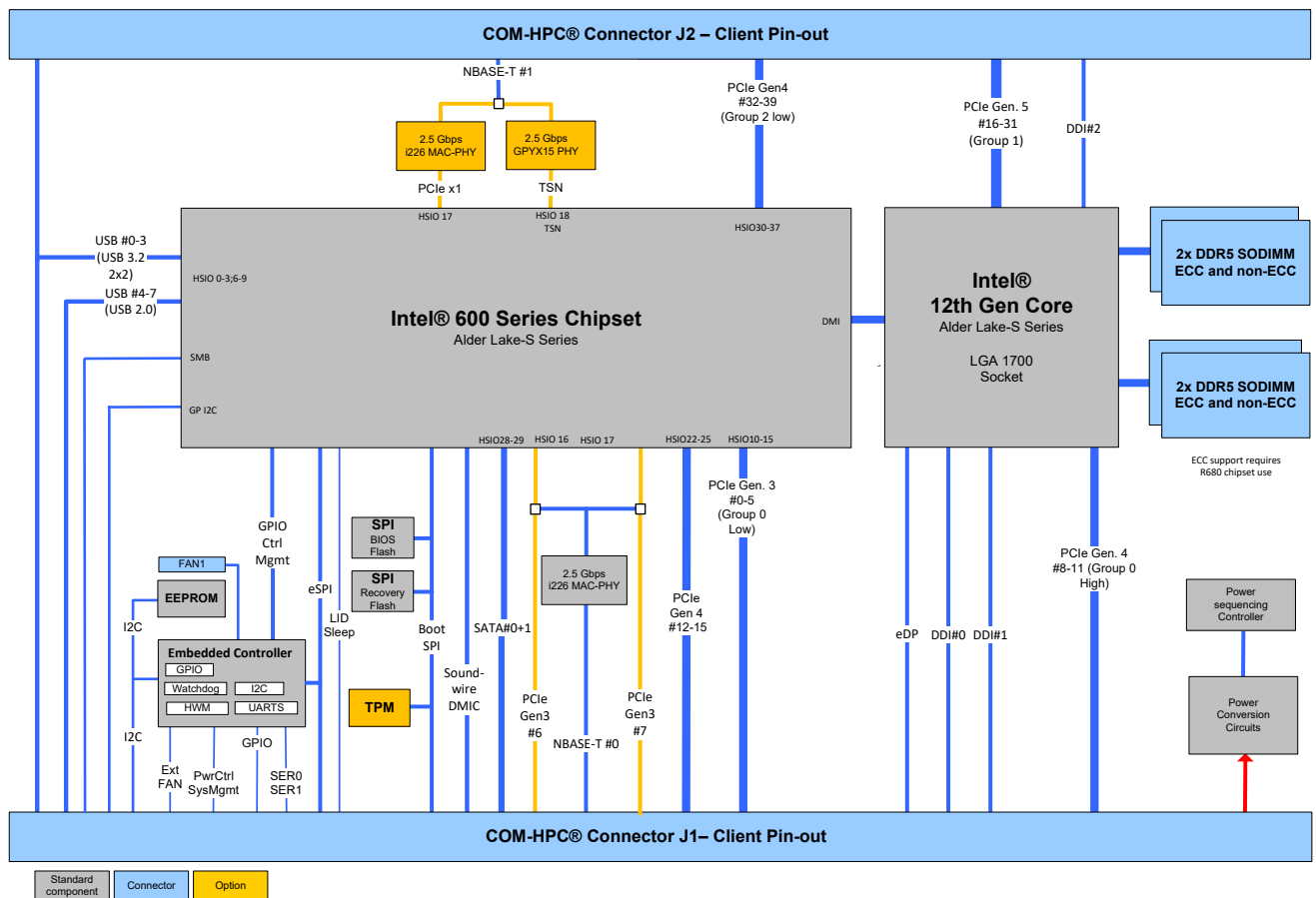
Following Alder Lake CPUs do exist. Please be aware, that the CPU is not part of this product.

PROCESSOR	SUPPORTED ON COMh-ccAS	TESTED	P/E CORES (THREADS)	P/E BASE CLOCK RATE	SMART CACHE (MByte)	GPU MODEL	GPU MAX CLOCK RATE	MEM-FREQ (MT/s)	ECC	PROCESSOR BASE POWER (W)
i9-12900K	No	No	8 (16)/8 (8)	3.2/2.4 GHz	30	UHD 770	1.55 GHz	4800	Yes	125
i9-12900KF	No	No	8 (16)/8 (8)	3.2/2.4 GHz	30	N/A	N/A	4800	Yes	125
i9-12900	Yes	Yes	8 (16)/8 (8)	2.4/1.8 GHz	30	UHD 770	1.55 GHz	4800	Yes	65
i9-12900F	Yes	No	8 (16)/8 (8)	2.4/1.8 GHz	30	N/A	N/A	4800	Yes	65
i9-12900T	Yes	No	8 (16)/8 (8)	1.4/1.0 GHz	30	UHD 770	1.55 GHz	4800	Yes	35
i9-12900E	Yes	Yes	8 (16)/8 (8)	2.3/1.7 GHz	30	UHD 770	1.55 GHz	4800	Yes	65
i9-12900TE	Yes	Yes	8 (16)/8 (8)	1.1/1.0 GHz	30	UHD 770	1.55 GHz	4800	Yes	35
i7-12700K	No	No	8 (16)/4 (4)	3.6/2.7 GHz	25	UHD 770	1.50 GHz	4800	Yes	125
i7-12700KF	No	No	8 (16)/4 (4)	3.6/2.7 GHz	25	N/A	N/A	4800	Yes	125
i7-12700	Yes	Yes	8 (16)/4 (4)	2.1/1.6 GHz	25	UHD 770	1.50 GHz	4800	Yes	65
i7-12700F	Yes	No	8 (16)/4 (4)	2.1/1.6 GHz	25	N/A	N/A	4800	Yes	65
i7-12700E	Yes	Yes	8 (16)/4 (4)	1.4/1.0 GHz	25	UHD 770	1.50 GHz	4800	Yes	35
i7-12700TE	Yes	Yes	8 (16)/4 (4)	1.4/1.0 GHz	25	UHD 770	1.50 GHz	4800	Yes	35
i5-12600K	No	No	6 (12)/4 (4)	3.7/2.8 GHz	20	UHD 770	1.45 GHz	4800	Yes	125
i5-12600KF	No	No	6 (12)/4 (4)	3.7/2.8 GHz	20	N/A	N/A	4800	Yes	125
i5-12600	Yes	No	6 (12)/N/A	3.3/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	65
i5-12600T	Yes	No	6 (12)/N/A	2.1/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	35
i5-12500	Yes	Yes	6 (12)/N/A	3.0/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	65
i5-12500T	Yes	No	6 (12)/N/A	2.0/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	35
i5-12500E	Yes	Yes	6 (12)/N/A	2.9/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	65
i5-12500TE	Yes	Yes	6 (12)/N/A	2.5/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	35
i5-12400	Yes	No	6 (12)/N/A	2.5/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	65
i5-12400F	Yes	No	6 (12)/N/A	2.5/N/A GHz	18	N/A	N/A	4800	Yes	65
i5-12400T	Yes	No	6 (12)/N/A	1.8/N/A GHz	18	UHD 770	1.45 GHz	4800	Yes	35
i3-12300	Yes	No	4 (8)/N/A	3.5/N/A GHz	12	UHD 730	1.45 GHz	4800	Yes	60
i3-12300T	Yes	No	4 (8)/N/A	2.3/N/A GHz	12	UHD 730	1.45 GHz	4800	Yes	35
i3-12100	Yes	Yes	4 (8)/N/A	3.3/N/A GHz	12	UHD 730	1.40 GHz	4800	Yes	60
i3-12100F	Yes	No	4 (8)/N/A	3.3/N/A GHz	12	N/A	N/A	4800	Yes	58
i3-12100T	Yes	No	4 (8)/N/A	2.2/N/A GHz	12	UHD 730	1.40 GHz	4800	Yes	35
i3-12100E	Yes	Yes	4 (8)/N/A	3.2/N/A GHz	12	UHD 730	1.40 GHz	4800	Yes	60
i3-12100TE	Yes	Yes	4 (8)/N/A	2.1/N/A GHz	12	UHD 730	1.40 GHz	4800	Yes	35
Gold-G7400	Yes	No	2 (4)/N/A	3.7/N/A GHz	6	UHD 710	1.35 GHz	4800	No	46
Gold-G7400T	Yes	No	2 (4)/N/A	3.1/N/A GHz	6	UHD 710	1.35 GHz	4800	No	35
Gold-G7400E	Yes	Yes	2 (4)/N/A	3.6/N/A GHz	6	UHD 710	1.35 GHz	4800	Yes	46
Gold-G7400TE	Yes	Yes	2 (4)/N/A	3.0/N/A GHz	6	UHD 710	1.35 GHz	4800	Yes	35
Celeron-G6900	Yes	No	2 (2)/N/A	3.4/N/A GHz	4	UHD 710	1.30 GHz	4800	No	46
Celeron-G6900T	Yes	No	2 (2)/N/A	2.8/N/A GHz	4	UHD 710	1.30 GHz	4800	No	35
Celeron-G6900E	Yes	Yes	2 (2)/N/A	3.0/N/A GHz	4	UHD 710	1.30 GHz	4800	Yes	46
Celeron-G6900TE	Yes	Yes	2 (2)/N/A	2.4/N/A GHz	4	UHD 710	1.30 GHz	4800	Yes	35

► CPUS PROVIDED BY KONTRON

ARTICLE	PART NO.	DESCRIPTION
i9-12900 ALDER LAKE-S	HCC01-1290-i9-0	i9-12900 Alder Lake -S LGA 1700 2.4 GHz 8+8 65 W PC Client
i7-12700 ALDER LAKE-S	HCC01-1270-i7-0	i7-12700 Alder Lake -S LGA 1700 2.1 GHz 8+4 65 W PC Client
i5-12600 ALDER LAKE-S	HCC01-1260-i5-0	i5-12600 Alder Lake -S LGA 1700 3.3 GHz 6+0 65 W PC Client
i3-12100 ALDER LAKE-S	HCC01-1210-i3-0	i3-12100 Alder Lake -S LGA 1700 3.3 GHz 4+0 65 W PC Client
G7400E ALDER LAKE-S	HCC01-G740-PG-E	G7400E Alder Lake -S LGA 1700 3.6 GHz 2+0 46 W PC Client
G7400TE ALDER LAKE-S	HCC01-G740-PG-T	G7400TE Alder Lake -S LGA 1700 3.0 GHz 2+0 35 W PC Client Low Power
G6900E ALDER LAKE-S	HCC01-G690-CE-E	G6900E Alder Lake -S LGA 1700 3.0 GHz 2+0 65 W PC Client
G6900TE ALDER LAKE-S	HCC01-G690-CE-T	G6900TE Alder Lake -S LGA 1700 2.4 GHz 2+0 25 W PC Client Low Power
i9-12900E ALDER LAKE-S	HCC02-1290-i9-E	i9-12900E Alder Lake -S LGA 1700 2.3 GHz 8+8 65 W Embedded
i9-12900TE ALDER LAKE-S	HCC02-1290-i9-T	i9-12900E Alder Lake -S LGA 1700 2.3 GHz 8+8 35 W Embedded Low Power
i7-12700E ALDER LAKE-S	HCC02-1270-i7-E	i7-12700E Alder Lake -S LGA 1700 2.1 GHz 8+4 65 W Embedded
i7-12700TE ALDER LAKE-S	HCC02-1270-i7-T	i7-12700TE Alder Lake -S LGA 1700 1.4 GHz 8+4 35 W Embedded Low Power
i5-12500E ALDER LAKE-S	HCC02-1250-i5-E	i5-12500E Alder Lake -S LGA 1700 2.9 GHz 6+0 65 W Embedded
i5-12500TE ALDER LAKE-S	HCC02-1250-i5-T	i5-12500TE Alder Lake -S LGA 1700 2.5 GHz 6+0 35 W Embedded Low Power
i3-12100E ALDER LAKE-S	HCC02-1210-i3-E	i3-12100E Alder Lake -S LGA 1700 3.2 GHz 4+0 65 W Embedded
i3-12100TE ALDER LAKE-S	HCC02-1210-i3-T	i3-12100TE Alder Lake -S LGA 1700 2.1 GHz 6+0 35 W Embedded Low Power

► BLOCK DIAGRAM



▶ VARIANTS

PART NO.	ARTICLE	LAN	OP. TEMPERATURE	USE CASE
HCC01-0000-80-0	COMh-ccAS W680	2x I226	0 °C - +60 °C	PC Client
HCC01-0000-70-0	COMh-ccAS Q670	2x I226	0 °C - +60 °C	PC Client
HCC01-0000-10-0	COMh-ccAS H610	2x I226	0 °C - +60 °C	PC Client
HCC02-0000-8E-0	COMh-ccAS R680E	1x I226; 1x GPY215	0 °C - +60 °C	Embedded
HCC02-0000-7E-0	COMh-ccAS Q670E	2x I226	0 °C - +60 °C	Embedded
HCC02-0000-1E-0	COMh-ccAS H610E	2x I226	0 °C - +60 °C	Embedded

Please contact tech support for custom UEFI firmware

▶ 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
COMh-ccAS HEAT SPREADER	HCC0A-0000-99-0	Standard COM-HPC Heat Spreader for COMh-ccAS
COMh-ccAS X-BRACKET	HCC0A-0000-99-1	X-Shape Bracket for Standard Motherboard Cooler
COMh-ccAS PCH COOLER	HCC0A-0000-99-2	PCH Cooler for COMh-ccAS
COMh-ccAS COOLING KIT 65W	HCC0A-0000-99-3	Motherboard CPU Cooler + X-Bracket + PCH Cooler for up to 65 W CPUs
COMh-ccAS COOLER MOUNTING JACKET	HCC0A-0000-99-4	Needs to be used instead of X-Bracket, when 4th memory module is in use

▶ MEMORY

PART NO.	MIN. SPEC.	SIZE	ECC/NON-ECC	OP. TEMPERATURE
97040-0848-CCAS	DDR5-4800	8 GByte	No ECC	0 °C to +60 °C
97040-1648-CCAS	DDR5-4800	16 GByte	No ECC	0 °C to +60 °C
97040-3248-CCAS	DDR5-4800	32 GByte	No ECC	0 °C to +60 °C
97050-0848-CCAS	DDR5-4800	8 GByte	ECC	0 °C to +60 °C
97050-1648-CCAS	DDR5-4800	16 GByte	ECC	0 °C to +60 °C
97050-3248-CCAS	DDR5-4800	32 GByte	ECC	0 °C to +60 °C

▶ GLOBAL HEADQUARTERS

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