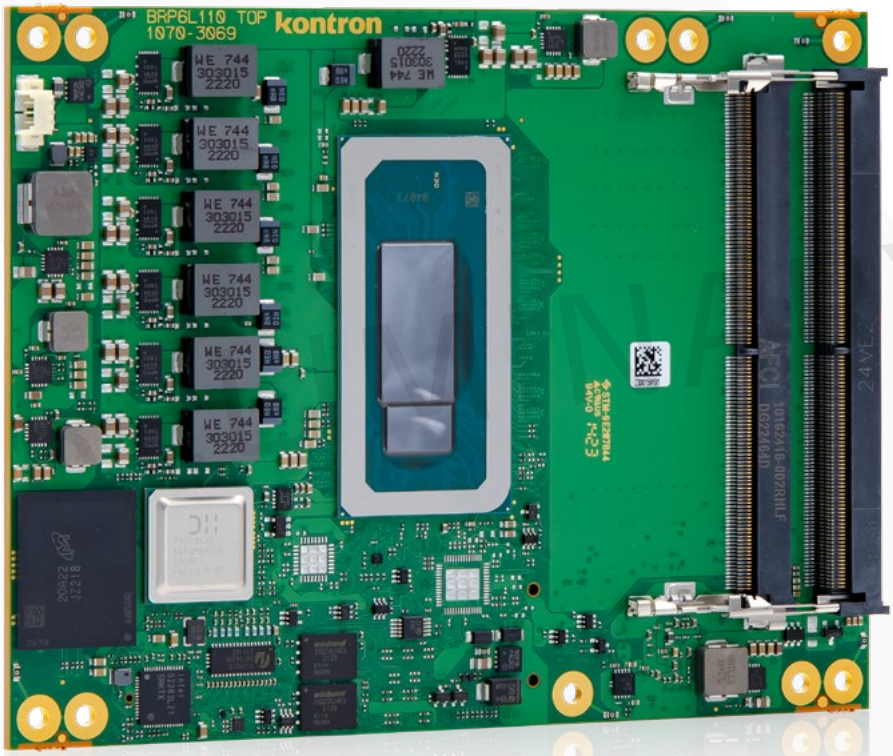
COMe-bRP6 (E2)



COM Express® Basic Type 6 with 13th Generation Intel® Core™ Processors

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

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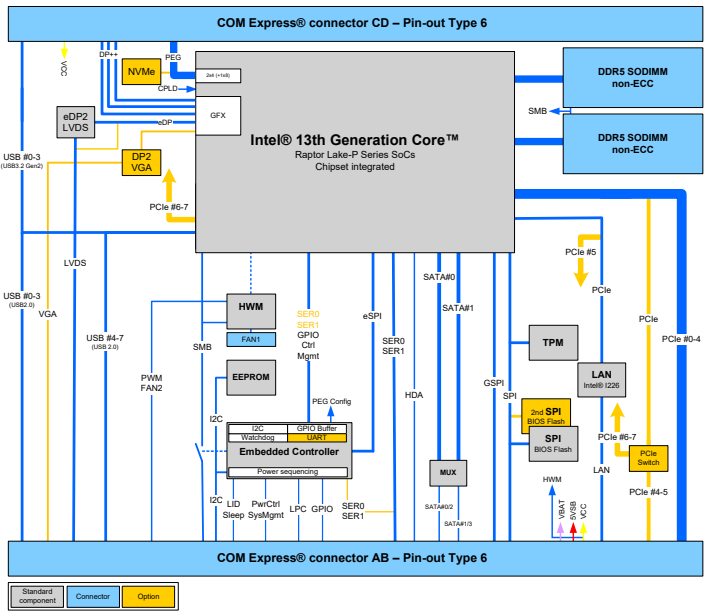
Technical Information

COMPLIANCE	COM Express® Basic Pin-out Type 6
DIMENSIONS (H x W)	125 x 95 mm
CPU	Intel® 13th Generation Core™ family For details see table (CPU variants) given below
CHIPSET	Integrated SoC
MAIN MEMORY	2x DDR5 SO-DIMM with up to 32 GByte per channel (non-ECC)
GRAPHICS CONTROLLER	Intel® Iris® Xe Graphics on i7/i5 processors Intel® UHD Graphics on i3 processors
ETHERNET CONTROLLER	Intel® I226LM/I226IT
ETHERNET	Up to 2.5Gb Ethernet with TSN support (depending on SKU)
STORAGE	2x SATA 6Gb/s
FLASH ONBOARD	Up to 1 TByte NVMe SSD (on request)
PCI EXPRESS®	5x PCIe 3.0 (On request: 6x without Ethernet, up to 8x without Ethernet & SATA or alternatively 8x with additional PCIe Switch) 2x4 PCIe 4.0 on PEG Lanes #0-7, 1x8 PCIe 4.0 on PEG Lanes #8-15 (depending on SKU)
DISPLAY	DDI1: DP++, DDI2: DP++, DDI3: DP++, VGA: -, LVDS: Dual Channel 18/24bit
USB	4x USB 3.2 Gen2 (incl. USB 2.0) + 4x USB 2.0
SERIAL	2x serial interface (RX/TX only)
AUDIO	Intel® High Definition Audio
OTHER FEATURES	(G) SPI, LPC, SMB, Fast I²C, Staged Watchdog, RTC
SPECIAL FEATURES	POSCAP capacitors, Trusted Platform Module TPM 2.0
FEATURES ON REQUEST	vPRO (AMT/TXT/AES Support), eDP instead of LVDS, USB-C, up to 3x PCIe x1 additional w/o Ethernet & SATA or alternatively with additional PCIe Switch, NVMe SSD, Fail Safe via 2nd SPI Flash
POWER MANAGEMENT	ACPI 6.0
POWER SUPPLY	8.5 V – 20 V Wide Range, Single Supply Power
BIOS	AMI Aptio V
OPERATING SYSTEM	Windows®10, Linux, VxWorks (project based)
TEMPERATURE	Commercial temperature: 0 °C to +60 °C operating, -30 °C to +85 °C non-operating Industrial temperature: -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)

PRELIMINARY

Block Diagram



CPU Variants

	13TH GEN RAPTOR LAKE H-SERIES EMBEDDED (45 W)		
CPU	i7-13800HE	i5-13600HE	i3-13300HE
CORES	14	12	8
NUMBER OF P-CORES	6	4	4
FREQUENCY BASE /TURBO (P-CORES)	2.5/5.0 GHz	2.7/4.8 GHz	2.1/4.6 GHz
NUMBER OF E-CORES	8	8	4
FREQUENCY BASE /TURBO (E-CORES)	1.8/4.0 GHz	1.9/3.6 GHz	1.5/3.4 GHz
TDP	45/35 W	45/35 W	45/35 W
CACHE	24 MByte	18 Mbyte	12 Mbyte
IBECC	no	no	no
TCC/TSN	no	no	no

	13TH GEN RAPTOR LAKE H-SERIES INDUSTRIAL (45 W)		
CPU	i7-13800HRE	i5-13600HRE	i3-13300HRE
CORES	14	12	8
NUMBER OF P-CORES	6	4	4
FREQUENCY BASE /TURBO (P-CORES)	2.5/5.0 GHz	2.7/4.8 GHz	2.1/4.6 GHz
NUMBER OF E-CORES	8	8	4
FREQUENCY BASE /TURBO (E-CORES)	1.8/4.0 GHz	1.9/3.6 GHz	1.5/3.4 GHz
TDP	45/35 W	45/35 W	45/35 W
CACHE	24 MByte	18 Mbyte	12 Mbyte
IBECC	yes	yes	yes
TCC/TSN	yes	yes	yes

PRELIMINARY

	13TH GEN RAPTOR LAKE P-SERIES EMBEDDED (28 W)		
CPU	i7-1370PE	i5-1350PE	i3-1320PE
CORES	14	12	8
NUMBER OF P-CORES	6	4	4
FREQUENCY BASE /TURBO (P-CORES)	1.9/4.8 GHz	1.8/4.6 GHz	1.7/4.5 GHz
NUMBER OF E-CORES	8	8	4
FREQUENCY BASE /TURBO (E-CORES)	1.2/3.7 GHz	1.3/3.4 GHz	1.2/3.3 GHz
TDP	28/20 W	28/20 W	28/20 W
CACHE	24 MByte	12 Mbyte	12 Mbyte
IBECC	no	no	no
TCC/TSN	no	no	no

	13TH GEN RAPTOR LAKE P-SERIES INDUSTRIAL (28 W)		
CPU	i7-1370PRE	i5-1350PRE	i3-1320PRE
CORES	14	12	8
NUMBER OF P-CORES	6	4	4
FREQUENCY BASE /TURBO (P-CORES)	1.9/4.8 GHz	1.8/4.6 GHz	1.7/4.5 GHz
NUMBER OF E-CORES	8	8	4
FREQUENCY BASE /TURBO (E-CORES)	1.2/3.7 GHz	1.3/3.4 GHz	1.2/3.3 GHz
TDP	28/20 W	28/20 W	28/20 W
CACHE	24 MByte	12 Mbyte	12 Mbyte
IBECC	yes	yes	yes
TCC/TSN	yes	yes	yes

Variants

PART NO.	CPU	PCH	MEM. DOWN	SO-DIMM	FLASH	OP. TEMPERATURE
38040-0000-25-7	i7-13800HE	-	-	non-ECC	-	0 °C – 60 °C
38040-0000-27-5	i5-13600HE	-	-	non-ECC	-	0 °C – 60 °C
38040-0000-21-3	i3-13300HE	-	-	non-ECC	-	0 °C – 60 °C
38040-0000-19-7	i7-1370PE	-	-	non-ECC	-	0 °C – 60 °C
38040-0000-18-5	i5-1350PE	-	-	non-ECC	-	0 °C – 60 °C
38040-0000-17-3	i3-1320PE	-	-	non-ECC	-	0 °C – 60 °C
38041-0000-25-7	i7-13800HRE	-	-	non-ECC	-	-40 °C – 85 °C
38041-0000-27-5	i5-13600HRE	-	-	non-ECC	-	-40 °C – 85 °C
38041-0000-21-3	i3-13300HRE	-	-	non-ECC	-	-40 °C – 85 °C
38041-0000-19-7	i7-1370PRE	-	-	non-ECC	-	-40 °C – 85 °C
38041-0000-18-5	i5-1350PRE	-	-	non-ECC	-	-40 °C – 85 °C
38041-0000-17-3	i3-1320PRE	-	-	non-ECC	-	-40 °C – 85 °C

PRELIMINARY

Carrier

ARTICLE	PART NO.	DESCRIPTION
COME EVAL CARRIER2 T6	38116-0000-00-5	COM Express® Evaluation Carrier Type 6

Cooling

ARTICLE	PART NO.	DESCRIPTION
HSP COME-BRP6 CU-CORE THREADED	38040-0000-99-0	Heatspreader for COM-bRP6, Cu-core, threaded mounting holes
HSP COME-BRP6 CU-CORE THROUGH	38040-0000-99-1	Heatspreader for COM-bRP6, Cu-core, through mounting holes
HSK COME-BASIC ACTIVE (W/O HSP)	38025-0000-99-0C05	Active Cooler for COMe-bxL6/bDV7 to be mounted on HSP
HSK COME-BASIC PASSIVE (W/O HSP)	38025-0000-99-0C06	Passive Cooler for COMe-bxL6/bDV7 to be mounted on HSP

Memory

ARTICLE	MIN. SPEC.	SIZE	ECC	OP. TEMPERATURE
97040-3248-BRP6	DDR5-4800	32 GByte	no	0 °C – 60 °C
97040-1648-BRP6	DDR5-4800	16 GByte	no	0 °C – 60 °C
97040-0848-BRP6	DDR5-4800	8 GByte	no	0 °C – 60 °C
97041-3248-BRP6	DDR5-4800	32 GByte	no	-40 °C – 85 °C
97041-1648-BRP6	DDR5-4800	16 GByte	no	-40 °C – 85 °C
97041-0848-BRP6	DDR5-4800	8 GByte	no	-40 °C – 85 °C

PRELIMINARY

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