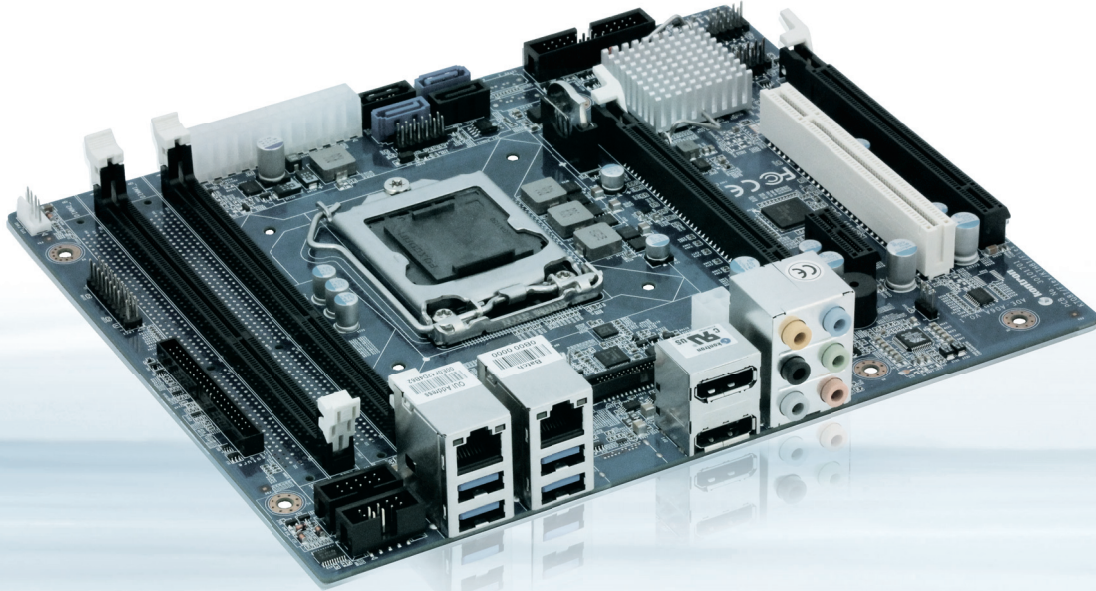# KTH81/Flex

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EMBEDDED Flex MOTHERBOARD WITH Intel® H81 CHIPSET AND 4th GEN Intel® i7/i5/i3 DUAL AND QUAD CORE CPUs

▶ 4th Generation Intel® 22nm Dual and Quad Core i7, i5, i3, Pentium & Celeron® CPUs with Intel® H81 Lynx Point PCH

▶ long term available Embedded Flex motherboard

▶ high performance CPU, graphics, and media performance supporting 2 independent displays pipes

▶ graphics APIs DirectX 11.1, OpenGL 4.x, OpenCL 1.2

POSSIBILITIES START HERE kontron

KTH81/Flex

▶ **Gaming/POS/POI:** High graphics and CPU performance, multi display support
▶ **Medical:** High Graphics performance & longevity
▶ **Industrial Automation:** Wide range of I/Os & longevity
▶ **Future-oriented Devices** Due to Display Port and LVDS

▶ TECHNICAL INFORMATION

FORM FACTOR	Flex 229 x 191 mm (7.5" x 9.0")
CPU	Intel® Core i7/i5/i3 2C/4C CPU clock up to 3.1 GHz
GRAPHICS	Integrated into CPU with GT1 or GT2 depending on CPU type
GRAPHIC INTERFACE	2x Display Port revision 1.2 in Rear IO, 1x 18/24 Bit dual Link LVDS interface in internal header Note: LVDS interface share one DisplayPort
MEMORY	Up to 8 GByte DDR3L/DDR3, 2x DIMM (max. 16 GByte), PC3-10600/PC3-12800 support
CHIPSET	Intel® Embedded H81
FRONT SIDE BUS	DMI 2.0 support, four lanes in each direction, up to 20 Gb/s each direction, full duplex, DMI interface to PCH is supported
SATA	4x SATA interfaces, 2x SATA 1.5/3/6 Gbit/s and 2x SATA 1.5/3 Gbit/s
USB	2x USB 3.0 and 8x USB 2.0 (2x USB 3.0/USB 2.0 and 2x USB 2.0 in Rear IO, 6x USB 2.0 Internal Header)
AUDIO	HD Audio codec VT1708S supporting 7.1 channel surround sound
ETHERNET	2x Intel® Gigabit-LAN
AVAILABLE I/OS	PCIe x16 socket with Gen2 support, 1x PCIe x2, 1x PCIe x1, 1x PCI rev 2.3, 2x COM (RS232)
REAR I/O	Audio stacked 2x 3 mini Jack tower, 4x USB, 2x Display port, 2x RJ45 LAN
SPECIAL FEATURE	TPM 1.2, Intel® AES security, Kontron embedded feature connector with ADC, DAC up to 160 GPIOs
OS SUPPORT	Win7, Win8 WES8, WES7, Linux, VxWorks
TEMPERATURE	Operating 0 °C to 60 °C (32 °F to 140 °F)
ADDITIONAL	Up to 7 years availability

▶ ORDERING INFORMATION

ARTICLE	PART NO.	DESCRIPTION
KTH81/FLEX	810581-4500	Flex board based on Intel® Shark Bay platform

CPUS		
CPU, CORE I5	1054-9757	CPU, Core I5-4570S GT2 2.9G 4C 6M LGA1150
CPU, CORE I7	1054-9752	CPU, Core I7-4770S GT2 3.1G 4C 8M LGA1150

Further CPUs will be defined in near future.

RECOMMENDED MEMORY MODULES	NEW SKU 04/16*	OLD SKU	SKU NAME**
	1060-2492	1054-3702	DDR3-1333 DIMM 2 GByte
	1060-2494	1054-3703	DDR3-1333 DIMM 4 GByte
	1060-2496	1054-3704	DDR3-1333 DIMM 8 GByte
	1060-2498	1054-3707	DDR3-1600 DIMM 2 GByte
	1060-2500	1054-3708	DDR3-1600 DIMM 4 GByte
	1060-2488	1052-5601	DDR3-1600 DIMM 8 GByte

*SKU changes were caused by administrative issues only, no hardware changes.
**Named are always the min. requirements, the shipped memory can fulfill a higher performance level

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