

# KBox Family IOT GATEWAYS/ EMBEDDED BOX PC

## IOT GATEWAYS/EMBEDDED BOX PC

Kontron's KBox family offers intelligent gateways for IoT edge applications including fieldbus connectivity. For control, inspection and data collection tasks on the factory floor powerful and maintenance-free Box PCs with a maximum of flexibility and expansion capabilities are provided.

The KBox A-series is designed for a variety of applications in the industrial environment. It comprises intelligent IoT gateways for edge analytics or remote monitoring as well as systems for control and process optimization. All systems feature a fanless design which ensures a significantly prolonged lifespan and high system availability.



### KBox A-SERIES Compact and flexible Box PC for IoT Gateway Applications

- ▶ Intelligent IoT gateways for edge analytics, data acquisition & remote monitoring
- ▶ Scalable processor performance from Intel Atom® to Core™ U series
- ▶ Compact, fanless system designs
- ▶ Broad range of interfaces and expansion capabilities
- ▶ Options for Fieldbus, WiFi, LTE
- ▶ Various mounting options e.g. DIN rail, desktop, wallmount, cabinet

The KBox B-Series is based on Kontron's mini-ITX motherboard family offering highest performance with desktop CPUs. Kontron's KBox B-Series can be used for various applications such as medical, gaming, process control, wherever high performance is needed.



### KBox B-SERIES High Performance Desktop PC with Wide Extension Capabilities

- ▶ High processing capability: 8th/9th Gen Intel® Core™ i3/i5/i7
- ▶ Low noise design with internal silent fan
- ▶ Small form factor with mITX motherboard
- ▶ RAID functionality with up to four storage devices
- ▶ PCIe expansion slots for graphics, network cards or other PCIe cards
- ▶ Smart Storage version with 2 additional 2.5" SSD or a 3.5" HDD up to 12 TByte
- ▶ WiFi functionality

Kontron's KBox C-Series is designed for the industrial control cabinet environment. Based on COMe modules the KBox C-Series is highly scalable and ensures simple upgrades whenever needed. The availability of different housing options guarantees mounting even when space is limited. With its broad range of interfaces, various storage capabilities and expansion slots, the KBox C-Series maximizes flexibility and eases adaptation to the specific application needs.



### KBox C-SERIES Powerful Industrial Box PC for Control, Inspection & Data Collection

- ▶ Processor performance up to 8th/9th Gen Intel® Core™ or Xeon® E for demanding applications
- ▶ Highest system availability: Fanless up to 65 °C, redundant PSU option, recovery button, goldcap backup
- ▶ Optimized for control applications: Fieldbus integration & NVRAM option
- ▶ High flexibility and expandability: Up to 4x PCIe Slots, mPCIe & M.2, 4x GbE, 6x USB, up to 3x DP, ...

- ▶ **SMART AUTOMATION**  
Industrial IoT applications, edge & fog computing
- ▶ **MAINTENANCE FREE**  
Reducing TCO – driving system availability
- ▶ **FOREVER YOUNG**  
Maximum innovation – minimum investment

### About Kontron – Member of the S&T Group

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). As a part of technology group S&T, Kontron offers a combined portfolio of secure hardware, middleware and services for Internet of Things (IoT) and Industry 4.0 applications. With its standard products and tailor-made solutions based on highly reliable state-of-the-art embedded technologies, Kontron provides secure and innovative applications for a variety of industries. As a result, customers benefit from accelerated time-to-market, reduced total cost of ownership, product longevity and the best fully integrated applications overall.

For more information, please visit: [www.kontron.com](http://www.kontron.com)

### About the Intel® Partner Alliance

From modular components to market-ready systems, Intel and the over 1,000+ global member companies of the Intel® Partner Alliance provide scalable, interoperable solutions that accelerate deployment of intelligent devices and end-to-end analytics. Close collaboration with Intel and each other enables Alliance members to innovate with the latest IoT technologies, helping developers deliver first-in-market solutions.

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# KBox FAMILY

## IOT GATEWAYS/EMBEDDED BOX PC



KBox		KBox A-330-RPI	KBox A-330-MX6	KBox A-203-sXAL4	KBox A-250	KBox A-103	KBox A-150-APL	KBox A-150-KBL	KBox A-150-WKL	KBox A-230-LS	KBox B-201-CFL	KBox B-202-CFL	KBox C-102 SERIES	KBox C-103-CFL SERIES
<b>PLATFORM MAINTENANCE-FREE</b>		4.3" SBC 1)	4.3" SBC 1)	5MARC 1) 2) 4) 6)	piTX 1) 4) 6)	SMAARC 1) 2) 4) 6)	3.5" SBC 1) 4) 6)	3.5" SBC 1) 4) 6)	3.5" SBC 1) 4) 6)	mITX 1) 2) 4) 6)	mITX 2) 4) 6)	mITX 2) 4) 6)	COM Express 1) 2) 3) 4) 5) 6)	COM Express 1) 2) 3) 4) 5) 6)
<b>PROCESSOR SYSTEM</b>	<b>CPU</b>	Broadcom® BCM2837B0 Arm®-A53	NXP i.MX6 Dual Core/ULL Arm®	Intel Atom® E3930/E3950	Intel Atom® E3930/E3950	Intel Atom® E3815/E3827/E3845	Intel Atom® E3930/E3950, Celeron® J3455, Pentium® N3350/ N4200	7th Gen Intel® Core™ i3-7100U/i5-7300U/i7-7600U or Celeron® 3965U	8th Generation Intel® Core™ i3-8145Ue / i5-8365Ue / i7-8665Ue or Celeron® 4305Ue	NXP Dual Cortex®-A72 LS1028A	8th/9th Gen Intel® Core™ i3-9100E/i5-9500E/i7-9700E	8th/9th Gen Intel® Core™ i3-9100E/i5-9500E/i7-9700E	6th Gen Intel® Celeron® G3902E, Core™ i3-6102E/i5-6442EQ/i7-6820EQ, Xeon® E3-1515M	8/9th Generation Intel® Celeron® G4930E, Core™ i3-9100HL /i5-8400H/i7-9850HE, Xeon® E-2276ME
	<b>MAX. SPEED</b>	Quad-Core 1.2 GHz	Dual-Core 1 GHz	Quad-Core 1.6/2.0 GHz (Burst)	Quad-Core 1.6/2.0 GHz (Burst)	Quad-Core 1.91 GHz	Quad-Core 1.5/2.3 GHz (Burst)	Dual-Core 2.8/3.9 GHz (Burst)	Quad-Core 1.7 GHz/4.4 GHz (Burst)	Dual-Core 1.3 GHz	Octa-Core 2.6 GHz/4.4 GHz (Burst)	Octa-Core 2.6 GHz/4.4 GHz (Burst)	Quad-Core 2.8 GHz/3.7 GHz (Burst)	Six-Core 2.8 GHz/4.5 GHz (Burst)
	<b>SYSTEM CHIPSET</b>	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Intel® H310 or Q370	Intel® H310 or Q370	Intel® CM236 or QM170 (Intel® Core™ i5 & Core™ i7)	Intel® CM246 (Xeon®) or QM370
	<b>BIOS</b>	-	-	AMI® Aptio V5	AMI® Aptio V5	Phoenix SecureCore™	AMI® Aptio V5	AMI® Aptio V5	AMI® Aptio V5	AMI® Aptio V5	AMI® Aptio 5.x	AMI® Aptio 5.x	AMI® Aptio V5	AMI® Aptio V5
	<b>MEMORY TECHNOLOGY</b>	LPDDR2	DDR3L	LPDDR4	DDR3L ECC	DDR3L ECC	DDR3L	DDR4	DDR4	DDR4 ECC	DDR4	DDR4	DDR4 non ECC/ECC	DDR4 non ECC/ECC
	<b>MAX. CAPACITY</b>	1 GByte	512 MB ULL, 2Gbyte Dual Core	8 GByte	8 GByte	4 GByte	8 GByte	32 GByte	32 GByte	4 GByte	32 GByte	32 GByte	32 GByte	64 GByte
	<b>SOCKET</b>	Soldered	Soldered	Soldered	Soldered	Soldered	Soldered	2x SODIMM	2x SODIMM	Soldered	2x SODIMM	2x SODIMM	2x SODIMM	2x SODIMM
	<b>GRAPHICS CORE</b>	VideoCore IV OpenGL-ES 1.1/2.0, Full HD 250 MHz	Vivante GC	Intel® HD Graphics 500	Intel® HD Graphics 500	Intel® HD Graphics	Intel® Core™ i3/i5/i7: Intel® HD Graphics 620, Intel® Celeron®: E3950/N4200: Intel®HD Graphics 505	Intel® Core™ i3/i5/i7: Intel® HD Graphics 620, Intel® Celeron®: Intel® HD Graphics 610	Intel® Core™ i3/i5/i7: Intel® UHD Graphics 620, Intel® Celeron®: Intel® UHD Graphics 610	Vivante GC7000	Intel® UHD Graphics 630, DX12	Intel® UHD Graphics 630, DX12	Intel® Xeon®: Intel® Iris™ Pro Graphics P580, Intel® Core™: Intel® HD Graphics 530, Intel® Celeron® HD Graphics 510	Intel® Xeon®: Intel® UHD Graphics P630, Intel® Core™: Intel® UHD Graphics 630, Intel® Celeron®: Intel® UHD Graphics 610
	<b>MAX. RESOLUTION</b>	1920 x 1080	1920 x 1080	4096 x 2160	4096 x 2160	Full HD (1920 x 1080)	4096 x 2160	4096 x 2304	4096 x 2304	4096 x 2160	4096 x 2304	4096 x 2304	4096 x 2304	4096 x 2304
	<b>HDMI/DVI/DP/VGA</b>	1/0/0/0	1/0/0/0	0/0/1/0	0/0/1/0	0/0/1/1	0/0/1/0	0/0/1/0	0/0/2/0	0/0/1/0	0/1/2/0	0/0/1 (2*)/0	0/0/2 (2*)/0	0/0/2 (2*)/0
	<b>CONTROLLER</b>	2x Fast Ethernet	2x Fast Ethernet	2x GbE: 2x Intel® I210-IT	1x GbE: Intel® I210-IT, 1x Fast Ethernet	2x GbE: 2x Intel® I210-IT	2x GbE: 2x Intel® I210-AT	2x GbE: 1x Intel® I210-AT, 1x Intel® I219-LM	2x GbE: Intel® I210-IT, 1x I219-LM	4x GbE TSN Switch ports, 1x GbE TSN, 1x GbE	2x GbE: 1x Intel® I210-AT, 1x I219-LM	2x GbE: 1x Intel® I210-AT, 1x I219-LM	3x GbE: 2x Intel® I210-IT, 1x I219-LM	4x GbE: 3x Intel® I210-IT, 1x I219-LM
	<b>IEEE1588</b>	-	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
	<b>TEAMING/FAILOVER</b>	-	-	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
	<b>STANDARD</b>	CAN	CAN	PROFIBUS*	PROFIBUS*	PROFIBUS*	PROFIBUS*	PROFIBUS*	CAN*	CAN*	CAN*	CAN, PROFIBUS or PROFINET*	1x CAN, 1x PROFIBUS / PROFINET* / ETHERCAT*	1x CAN, 1x PROFIBUS / PROFINET* / ETHERCAT*
	<b>RS232 / RS422/RS485</b>	1/0/1 (RS485 switchable CAN)	1/0/1 (RS485 switchable CAN)	1 (2*)/1/1	1 (2*)/2*/2*	1 (2*)/2*/2*	2 (4*)/2/2	2 (4*)/2/2	2 (4*)/2/2	1 (2*)/0/1*	1/0/0	1/0/0	1 (2*)/1*/0	1 (2*)/1 (2*)/1
	<b>USB 3.0/2.0</b>	0/2 (OTG)	0/2	2/0	2/0	1/2	4/0	4/0	4/0	1/1	6/4	6/4	2/2	3/3
	<b>AUDIO</b>	-	-	-	-	-	option	option	option	-	1x Line in, 1x Line out	1x Line in, 1x Line out	-	-
	<b>OTHERS</b>	4x Digital IOs	4x Digital IOs	-	7x Digital IOs 24 V, 1x Digital Input 24 V	Digital IO 4x In/4x Out TTL	-	-	-	3x LEDs (Power, SSD, GP), Reset switch	PS2 for keyboard/mouse	PS2 for keyboard/mouse	4x GPIO LEDs, 2x Buttons: Power / Reset & Rescue	8x Digital IOs*, 4x GPIO LEDs, 2x Buttons: Power/Reset & Recovery
	<b>WATCHDOG TIMER</b>	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
	<b>MINI PCIe/PCIe/M.2</b>	-	-	1 (2*)/0/0	2/0/0	2/0/0	1/0/1	1/0/1	1/0/3	1 (2*)/0/1	1/0/1	1/2/1	2/4/0	2/2/0
	<b>SIM CARD</b>	-	-	yes	yes	yes	yes	yes	yes	yes	-	-	-	-
	<b>2.5" SSD</b>	1	1	1	1	1	1	1	2	1	1	1	2	2
	<b>MSATA/M.2 SATA</b>	-	-	1/0	1/1	1/0	0/1	0/1	0/2	1/1	1/1	1/1	2/0	0/2
	<b>SDCARD</b>	1	1	1	1	1	1	1	-	1	1	1	1	1
	<b>ONBOARD FLASH</b>	up to 32 GByte eMMC	4 GByte eMMC	1	1	1*	-	-	-	1	-	-	-	1 Mbit FRAM*
	<b>MICROSOFT WINDOWS</b>	-	-	Win10	Win10	Win10	Win10	Win10	Win10	-	Win10	Win10	Win7, WE57, Win8.1 Industry, Win10	Win10, Windows Server 2019
	<b>LINUX</b>	Raspbian	Yocto	Yocto	Yocto	Yocto	Ubuntu 20.04 LTS	Ubuntu 20.04 LTS	Ubuntu 20.04 LTS	Yocto	Ubuntu 20.04 LTS	Ubuntu 20.04 LTS	Yocto	Ubuntu 20.04 LTS
	<b>SECURITY</b>	-	-	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0	TPM 2.0
	<b>HYPERVISOR</b>	-	-	on request	on request	on request	-	-	-	-	on request	on request	on request	on request
	<b>KEAPI</b>	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
	<b>INPUT VOLTAGE</b>	24 V DC (9...32 V DC)	24 V DC (9...32 V DC)	24 V DC (+/- 20 %)	24 V DC (+/- 20 %)	24 V DC (+20 %/- 15 %)	24 V DC (9...30 V DC)	24 V DC (9...30 V DC)	24 V DC (9...30 V DC)	24 V DC (+/- 20 %)	12 V DC/24 V DC* (external AC/DC adapter provided)	12 V DC/24 V DC* (external AC/DC adapter provided)	24V DC (+20 %/- 15 %)	24 V DC (17.36 V DC)
	<b>AC ADAPTER</b>	External AC/DC adapter	External AC/DC adapter	External AC/DC adapter optional, 90 to 264 V AC, 70 W	External AC/DC adapter optional, 90 to 264 V AC, 70 W	External AC/DC adapter optional, 90 to 264 V AC, 70 W	External AC/DC adapter optional, 90 to 264 V AC, 65 W	External AC/DC adapter optional, 90 to 264 V AC, 65 W	External AC/DC adapter optional, 90 to 264 V AC, 65 W	External AC/DC adapter optional, 90 to 264 V AC, 70 W	External AC/DC adapter 90 to 264 V AC, 150 W	External AC/DC adapter 90 to 264 V AC, 150 W	External AC/DC adapter optional 90 to 264 V AC, 150 W	External AC/DC adapter optional 90 to 264 V AC, 150 W
	<b>MOUNTING</b>	DIN RAIL, Cabinet	DIN RAIL, Cabinet	DIN RAIL, Desktop, Cabinet, Bookmount	DIN RAIL, Desktop, Wallmount, Cabinet	DIN RAIL, Desktop, Wallmount, Cabinet, VESA	DIN RAIL	DIN RAIL	DIN RAIL	DIN RAIL, Desktop, Wall, Cabinet	Desktop, Wall Mount, VESA	Desktop, Wall Mount, VESA	Control cabinet key holes, book size format	Control cabinet key holes, book size format
	<b>DIMENSION (W x H x D)</b>	111 x 25 x 76 mm	111 x 25 x 76 mm	150 x 57 x 95 mm (5.91" x 2.24" x 3.74")	150 x 58 x 100 mm (5.91" x 2.28" x 3.94")	210 x 65 x 140 mm (8.27" x 2.56" x 5.51")	50 (58 with SSD carrier) x 180 x 134 mm (1.97 (2.28)" x 7.09" x 5.28")	50 (58 with SSD carrier) x 180 x 134 mm (1.97 (2.28)" x 7.09" x 5.28")	50 (58 with SSD carrier) x 180 x 134 mm (1.97 (2.28)" x 7.09" x 5.28")	150 x 58 x 100 mm (5.91" x 2.28" x 3.94")	190 x 60 x 190 mm (7.48" x 2.36" x 7.48")	190 x 120 x 190 mm (7.48" x 4.72" x 7.48")	195 x 290 x 210 mm (7.68" x 11.42" x 8.27")	155 x 290 x 210 mm (6.1" x 11.42" x 8.27")
	<b>WEIGHT</b>	approx. 0.3 kg (0.66 lbs)	approx. 0.3 kg (0.66 lbs)	1 kg (2.20 lbs)	1 kg (2.20 lbs)	2.5 kg (5.51 lbs)	1.3 kg (2.9 lbs)	1.3 kg (2.9 lbs)	1.3 kg (2.9 lbs)	1.0 kg (2.2 lbs)	2 kg (4.4 lbs)	3 kg (6.6 lbs)	approx. 6 kg (13.22 lbs)	4.75 kg (10.47 lbs)
	<b>COOLING</b>	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	With fan	With fan	Fanless	Fanless
	<b>OPERATING TEMPERATURE</b>	0 °C to +55 °C (32 °F to 131 °F)	0 °C to +55 °C (32 °F to 131 °F)	0 °C to +60 °C (32 °F to 140 °F)	0 °C to +50 °C (32 °F to 122 °F)	-20 °C to +60 °C (-4 °F to 140 °F)	0 °C to +40 °C/+50 °C with opt. heat sink (32 °F to 104 °F/122 °F with opt. heat sink)	0 °C to +40 °C/+50 °C with opt. heat sink (32 °F to 104 °F/122 °F with opt. heat sink)	0 °C to +40 °C/+50 °C with opt. heat sink (32 °F to 104 °F/122 °F with opt. heat sink)	0 °C to +60 °C (32 °F to 140 °F)	0 °C to +45 °C (32 °F to 113 °F)	0 °C to +45 °C (32 °F to 113 °F)	with Intel® Core™ i3/i5: -20 °C to +65 °C (32 °F to 149 °F) with Intel® Core™ i7/Xeon®: 0 °C to +50 °C (32 °F to 122 °F)	with Intel® Core™ i3/i5: -20 °C to +65 °C (-4 °F to 149 °F) with Intel® Core™ i7: -20 °C to +60 °C (-4 °F to 140 °F)
	<b>RELATIVE HUMIDITY</b>	93 % @ 40 °C non-condensing	93 % @ 40 °C non-condensing	93 % @ 40 °C non-condensing	93 % @ 40 °C non-condensing	95 % @ 40 °C (non-condensing)	10 % - 90 % @39 °C (non-condensing)	10 % - 90 % @39 °C (non-condensing)	10 % - 90 % @39 °C (non-condensing)	93 % @ 40 °C non-condensing	93 % @40 °C (non-condensing)	93 % @40 °C (non-condensing)	93 % @ 40 °C non-condensing	93 % @ 40 °C non-condensing
	<b>VIBRATION</b>	Vibration operational (tbc): IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational (tbc): IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-500 Hz, 1 G	Vibration operational: IEC 60068-2-6: 5-500 Hz, 1G	Vibration operational: IEC 60068-2-6: 5-500 Hz, 1G	Vibration operational: IEC 60068-2-6: 10-150 Hz, 1 G	Vibration operational: IEC 60068-2-6: 10-150 Hz, 1 G
	<b>SHOCK</b>	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G
	<b>IP PROTECTION CLASS</b>	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP40 on top/IP30 on sides	IP40 on top/IP30 on sides	IP 20	IP 20
	<b>CERTIFICATIONS</b>	CE/NRTL	CE	UL/CB/CE/FCC	UL/CB/CE/FCC	UL/CB/CE/FCC	UL/CB/CE/FCC	UL/CB/CE/FCC	UL/CB/CE/FCC	UL/CB/CE/FCC	CE/CB/NRTL	CE/CB/NRTL	UL/CB/CE/FCC	UL/CB/CE/FCC

<sup>1)</sup>No moving parts <sup>2)</sup>No battery required <sup>3)</sup>Hold up time >10 ms <sup>4)</sup>Remote system diagnostics

<sup>5)</sup>Rescue Button (RSQ) Operation <sup>6)</sup>Power On/Off options

<sup>\*)</sup>Optional