

IoT GATEWAYS/ EMBEDDED BOX PC



▶ **SMART AUTOMATION**

Industrial IoT applications, edge & fog computing

▶ **MAINTENANCE FREE**

Reducing TCO – driving system availability

▶ **FOREVER YOUNG**

Maximum innovation – minimum investment

POSSIBILITIES START HERE



IoT GATEWAYS / EMBEDDED BOX PC



Kontron's Box PC product line 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 Box PC product line is certified for Microsoft Azure IoT Edge and enables scalable edge computing solutions from the sensor to the cloud.



KBox A-SERIES

Compact and flexible Embedded Box PC with gateway functions which handle control & process optimization on-site

- ▶ Scalable processor performance
- ▶ Intelligent IoT gateway for edge analytics, data collection, remote monitoring
- ▶ Fieldbus options
- ▶ Fanless design
- ▶ Broad range of interfaces and expansion capabilities
- ▶ Various mounting options (DIN RAIL, wall, desktop, cabinet)
- ▶ Easy customization with proven building blocks



KBox B-SERIES

Embedded Box PC for high-end computing in a small footprint for noise sensitive environments

- ▶ High processing capability: 7th Gen Intel® Core™ i3/i5/i7
- ▶ Low noise design with internal silent fan
- ▶ Small form factor with mITX motherboard
- ▶ Removable 2.5" SSD
- ▶ Various mounting options



KBox C-SERIES

Powerful Embedded Box PC especially designed for the industrial control cabinet environment for control, inspection and data collection tasks

- ▶ 6th Gen Intel® Core™ or XEON® processor
- ▶ Maximum of flexibility and expansion capabilities
- ▶ IoT ready - simply connected:
Fieldbuses (CAN, Profinet, Profibus), WiFi option
- ▶ Maintenance-free operation
- ▶ Recovery functionality via rescue button
- ▶ Optional with Kontron WideLink for remote visualization applications



KBox E-SERIES

Fanless Box PC ideal for entry-level computer or intelligent digital display applications

- ▶ Compact design
- ▶ Cost efficient
- ▶ Fanless
- ▶ Storage and wireless expansion capabilities



rNUC

Fanless Box PC designed for IoT applications

- ▶ Entry level Box PC
- ▶ Low-power and compact design
- ▶ Supports 2 Displays
- ▶ Designed for Digital Signage, POS and IoT applications



WideLink Technology

Enables the operation of visualization systems at up to 100 meters distance from the control computer

- ▶ Independent from OS or any other software
- ▶ Data communication via one single Ethernet cable
- ▶ Data transmission without time lag or quality loss

Box PC Product Line

IOT GATEWAYS/EMBEDDED BOX PC



KBox		KBox A-203	KBox A-250	KBox A-103	KBox A-150-BYT	KBox A-150-APL	KBox A-150-HSW	KBox A-150-SKL	KBox A-150-KBL
PLATFORM MAINTENANCE-FREE		SMARC 1) 2) 4) 6)	PITX 1) 4) 6)	SMARC 1) 2) 4) 6)	3.5" SBC 1) 4) 6)	3.5" SBC 1) 4) 6)	3.5" SBC 1) 4) 6)	3.5" SBC 1) 4) 6)	3.5" SBC 1) 4) 6)
PROCESSOR SYSTEM	CPU	Intel Atom® x5-E3930	Intel Atom® x5-E3930/E3940/E3950	Intel Atom® E3815/E3827/E3845	Intel® Celeron® J1900	Intel® Pentium® N4200	4th Generation Intel® Core™ i5-4300U	6th Generation Intel® Core™ i5-6300U	7th Generation Intel® Core™ i5-7300U
	MAX. SPEED	Dual-Core 1.3 / 1.8 GHz (Burst)	Quad-Core 1.6 / 2.0 GHz (Burst)	Quad-Core 1.91 GHz	Quad-Core 2.0/2.4 GHz (Burst)	Quad-Core 1.1 / 2.5 GHz (Burst)	Dual-Core 1.9/2.9 GHz (Burst)	Dual-Core 2.4 / 3.0 GHz (Burst)	Dual-Core 2.6 / 3.5 GHz (Burst)
	SYSTEM CHIPSET	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
MEMORY	BIOS	AMI® Aptio V5	AMI® Aptio V5	Phoenix SecureCore™	AMI® Aptio V5	AMI® Aptio V5	AMI® Aptio V5	AMI® Aptio V5	AMI® Aptio V5
	MEMORY TECHNOLOGY	DDR3L ECC	DDR3L ECC	DDR3L ECC	DDR3L	DDR3L	DDR3L	DDR4	DDR4
	MAX. CAPACITY	4 GByte	8 GByte	4 GByte	8 GByte	16 GByte	8 GByte	16 GByte	16 GByte
GRAPHICS	SOCKET	Soldered	Soldered	Soldered	1x SODIMM	2x SODIMM	1x SODIMM	2x SODIMM	2x SODIMM
	GRAPHICS CORE	Intel® HD Graphics 500	Intel® HD Graphics 500	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics 505	Intel® HD Graphics	Intel® HD Graphics 520	Intel® HD Graphics 620
	MAX. RESOLUTION	4096 x 2160	4096 x 2160	Full HD (1920 x 1080)	max. 2560 x 1600	4096 x 2160	max. 3200 x 2000	4096 x 2160	4096 x 2160
ETHERNET	HDMI / DVI / DP / VGA	0 / 0 / 1 / 0	0 / 0 / 1 / 0	0 / 0 / 1 / 1	1 / 0 / 0 / 1	1 / 0 / 0 / 1	1 / 0 / 0 / 1	1 / 0 / 0 / 1	1 / 0 / 1 / 0
	CONTROLLER	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-IT	2x GbE: 2x Intel® I210-AT	3x GbE: 2x Intel® I210-AT, 1x I218-LM	2x GbE: 2x Intel® I210-AT	2x GbE: 2x Intel® I210-AT
	IEEE1588	yes	yes	yes	yes	yes	yes	yes	yes
FIELDBUS	TEAMING / FAILOVER	yes / yes	yes / yes	yes / yes	yes / yes	yes / yes	yes / yes	yes / yes	yes / yes
	STANDARD	Profibus*	on request	Profibus*	on request	on request	on request	on request	on request
	RS232 / RS422 / RS485	1 (2*) / 1 / 1	1 / 0 / 0	1 (2*) / 2* / 2*	2 (4*) / 2 / 2	2 (4*) / 2 / 2	2 (4*) / 2 / 2	2 (4*) / 2 / 2	2 (4*) / 2 / 2
MISCELLANEOUS FEATURES	USB 3.0 / 2.0	2 / 0	2 / 0	1 / 2	1 / 2	4 / 0	4 / 0	4 / 0	4 / 0
	AUDIO	-	-	-	option	option	option	option	option
	OTHERS	LoRa*	7x Digital IOs 24 V, 1x Digital Input 24 V	Digital IO 4x In / 4x Out TTL	-	-	-	-	-
EXPANSION	WATCHDOG TIMER	yes	yes	yes	yes	yes	yes	yes	yes
	MINI PCIE / PCIE	1 (2*) / 0	2* (1x shared with mSATA) / 0	2 / 0	1 / 0	1 / 0	1 / 0	1 / 0	1 / 0
	SIM CARD	yes	yes	yes	yes	yes	yes	yes	yes
STORAGE	2.5" SSD	1*	-	1	1	1	1	1	1
	MSATA / M.2 SATA	1* / 0	1 / 1	1 / 0	1 / 0	0 / 1	1 / 0	0 / 1	0 / 1
	SDCARD	1	1	-	-	1	-	1	1
SOFTWARE SUPPORT	ONBOARD FLASH	1	-	1*	-	-	-	-	-
	MICROSOFT WINDOWS	Win10	Win10	WE57, Win7, Win8.1, Win10	Win7, Win8.1, Win10	Win10	Win7, Win8.1, Win10	Win7, Win10	Win10
	LINUX	Yocto	Yocto	Yocto	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
SECURITY	SECURITY	TPM 2.0, Kontron APPROTECT**	TPM 2.0, Kontron APPROTECT**	Kontron APPROTECT** on request	Kontron APPROTECT** on request	Kontron APPROTECT** on request	Kontron APPROTECT** on request	Kontron APPROTECT** on request	Kontron APPROTECT** on request
	HYPERVERSOR	on request	on request	on request	-	-	-	-	-
	KEAPI	yes	yes	yes	on request	yes	-	yes	yes
POWER	INPUT VOLTAGE	24 V DC	24 V DC	24 V DC	24 V DC (9...30 V DC)	24 V DC (9...30 V DC)	24 V DC (9...30 V DC)	24 V DC (9...30 V DC)	24 V DC (9...30 V DC)
	AC 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, 65 W	External AC/DC adapter optional, 90 to 264 V AC, 65 W
	MOUNTING	DIN RAIL, Desktop, Cabinet, Bookmount	DIN RAIL, Desktop, Wallmount, Cabinet	DIN RAIL, Desktop, Wallmount, Cabinet, VESA	DIN RAIL	DIN RAIL	DIN RAIL	DIN RAIL	DIN RAIL
MECHANICAL	DIMENSION (W X H X D)	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")	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")
	WEIGHT	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)	1.3 kg (2.9 lbs)	1.3 kg (2.9 lbs)
	COOLING	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless	Fanless
ENVIRONMENT	OPERATING TEMPERATURE	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 +50 °C (32 °F to 122 °F)	0 °C to +50 °C (32 °F to 122 °F)	0 °C to +50 °C (32 °F to 122 °F)	0 °C to +50 °C (32 °F to 122 °F)	0 °C to +50 °C (32 °F to 122 °F)
	RELATIVE HUMIDITY	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)	10 % - 90 % @ 39 °C (non-condensing)	10 % - 90 % @ 39 °C (non-condensing)
	VIBRATION	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: 10-500 Hz, 1 G
SHOCK	SHOCK	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
	IP PROTECTION CLASS	IP 20	IP 20	IP 20	IP 40	IP 40	IP 40	IP 40	IP 40
	SAFETY CERTIFICATIONS	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	UL/CB/CE/FCC

¹⁾No moving parts ²⁾No battery required ³⁾Hold up time >10 ms ⁴⁾Remote system diagnostics
⁵⁾Rescue Button (RSQ) Operation ⁶⁾Power On/Off options ^{*)}Optional ^{**)}based on WIBU Systems

Box PC Product Line

IOT GATEWAYS/EMBEDDED BOX PC



KBox		KBox B-201		KBox C-102 Family				KBox E-210		KBox E-300		rNUC	
PLATFORM MAINTENANCE-FREE		mITX 2) 4) 6)		COM Express 1) 2) 3) 4) 5) 6)				3.5" SBC 1) 4) 6)		3.5" SBC 1) 4) 6)		4X4" SBC 1) 3) 6)	
PROCESSOR SYSTEM	CPU	7th Generation Intel® Core™ i3-7101E / i5-7500 / i7-7700		6th Generation Intel® Celeron® G3902E, Core™ i3-6102E / i5-6442EQ / i7-6820EQ, XEON® E3-1515M				i5-6300U, i7-6600U, 3955U, i5-7300U, i7-7600U, 3965U, i3-7100U		N3350, N4200, x5-E3930, x5-E3940, x7-E3950, J3455		J3455	
	MAX. SPEED	Quad-Core 3.6 GHz / 4.2 GHz (Burst)		Quad-Core 2.8 GHz / 3.7 GHz (Burst)				Dual Core 3.90 GHz		Quad Core, 2.5GHz		Quad-Core, 1.5GHZ	
	SYSTEM CHIPSET	Intel® Q170		Intel® CM236 or QM170 (Intel® Core™ i5 & Core™ i7)				Integrated		Integrated		Integrated	
	BIOS	AMI® Aptio 5.x		AMI® Aptio V5				AMI uEFI		AMI uEFI		Intel Visual BIOS	
MEMORY	MEMORY TECHNOLOGY	DDR4		DDR4 non ECC/ECC				DDR4		DDR3		DDR3L	
	MAX. CAPACITY	32 GByte		32 GByte				32 Gbyte		8 Gbyte		8 Gbyte	
	SOCKET	2x SODIMM		2x SODIMM				2x SO-DIMM		2x SO-DIMM		2x SO-DIMM	
GRAPHICS	GRAPHICS CORE	Intel® HD Graphics 630, DX12		Intel® Xeon®: Intel® Iris™ Pro Graphics P580, Intel® Core™: Intel® HD Graphics 530, Celeron®: Intel® HD Graphics 510				Intel® HD Graphics 510 / 520 / 610 / 620		Intel® HD Graphics 500 / 505		Intel® HD Graphics	
	MAX. RESOLUTION	4096 x 2304		4096 x 2304				4096 x 2304		4096 x 2160 (@ 24 Hz)		1920 x 1080	
	HDMI / DVI / DP / VGA	0 / 1 / 2 / 0		0 / 0 / 1 (2*) / 0				1 / 0 / 1 / 0		2 / 0 / 0 / 0		1 / 0 / 0 / 1	
ETHERNET	CONTROLLER	2x GbE: 1x Intel® I210-AT, 1x I219-LM		3x GbE: 2x Intel® I210-IT, 1x I219-LM				2x GbE LAN: 1x Intel® I219-LM, 1x Intel® I210-AT		2x GbE LAN: Intel® I210-AT		1x GbE LAS	
	IEEE1588	yes		yes				yes		yes		yes	
	TEAMING / FAILOVER	yes / yes		yes / yes				yes		-		yes / yes	
	STANDARD	on request		CAN, Profibus or Profinet*				-		-		-	
FIELDBUS	RS232 / RS422 / RS485	1 / 0 / 0		1 (2*) / 1* / 0				2x RS232 / RS422 / RS485		2x RS232 / RS422 / RS485		-	
MISCELLANEOUS FEATURES	USB 3.0 / 2.0	4 / 4		2 / 2				4 / 0		4 / 0		4 / 0	
	AUDIO	1x Line in, 1x Line out		-				Realtek ALC662, 1x Line-in, 1x Line-out, 1x Mic-in		Realtek ALC662, 1x Line-out/Mic-in		7.1 Digital; L+R+Mic (Front), L+R+TOSLINK (Rear)	
	OTHERS	PS2 for keyboard / mouse		Kontron Widelink for remote visualization applications 4x GPIO LEDs, 2x Buttons: Power / Reset & Rescue				1x Digital IO (8-bit)		-		"Infrared Rx Sensor (Front), CEC+ 2x USB2.0+ AUX_PWR (via Internal Headers)"	
EXPANSION	WATCHDOG TIMER	yes		yes				yes		yes		-	
	MINI PCIE / PCIE	1 / 0		2 / 4 2 / 2 2 / 1 2 / 0				1x mPCIe		1x mSATA/ mPCIe		-	
	SIM CARD	-		-				-		1x Micro SIM Card Cage		-	
STORAGE	2.5" SSD	1		2 2 1 1				1x 2.5" SATA 3.0 HDD / SSD		-		Optional 1x 2.5" HDD / SSD	
	MSATA / M.2 SATA	1 / 1		2 / 0				1x M.2 Key B socket		1x M.2 Key B		1x M.2 Slot with PCIe x1 Lane (22 x 30)	
	Others	-		-				-		1x M.2 Key A, for WiFi or Bluetooth		-	
	SDCARD	-		1				-		1x Micro SD card		1x Micro SDXC	
	ONBOARD FLASH	-		-				-		-		On-Board 32 GByte eMMC	
SOFTWARE SUPPORT	MICROSOFT WINDOWS	Win10		Win7, WES7, Win8.1 Industry, Win10				Win10		Win10		Win10 Home x 64 Pre-Installed	
	LINUX	Yocto		Yocto				yes		yes		-	
SECURITY MIDDLEWARE	SECURITY	Kontron APPROTECT** on request		TPM 2.0, Kontron APPROTECT** on request				TPM 2.0 controller(Core-i)		-		AES, Secure Key, Secure Boot	
	HYPERSVISOR	-		-				-		-		-	
	KEAPI	yes		yes				-		-		Not Available	
POWER	INPUT VOLTAGE	12 V DC (external AC/DC adapter provided)		24V DC (+ 20 %/- 15 %)				DC 12 V		DC 9 V - 24 V		12V-19V DC	
	AC ADAPTER	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, 100 to 240 V AC, 60 W		External AC/DC adapter optional, 100 to 240 V AC, 40W		AC to DC 19 V/ 3.4 A (65W)	
MECHANICAL	MOUNTING	Desktop, Wall Mount, VESA		Control cabinet key holes, book size format				VESA Mount		VESA Mount		VESA Mount, Desktop	
	DIMENSION (W X H X D)	190 x 60 x 190 mm (7.48" x 2.36" 7.48")		195 x (7.68" x) 290 x 210 mm (11.42" x 8.27") 155 x (6.1" x) 290 x 210 mm (11.42" x 8.27") 130 x (5.12" x) 290 x 210 mm (11.42" x 8.27") 117 x (4.61" x) 290 x 210 mm (11.42" x 8.27")				220 mm x 38 mm x 153.3 mm (8.66" x 1.50" x 6.04")		165 mm x 40 mm x 109 mm (6.50" x 1.57" x 4.29")		115 x 111 x 51 mm (4.53" x 4.37" x 2.01")	
	WEIGHT	2 kg (4.4 lbs)		approx. 6 kg (13.22 lbs) 4.75 kg (10.47 lbs) approx. 4.6 kg (10.14 lbs) 3.8 kg (8.38 lbs)				1600 g / 3.53 lb		750 g / 1.65 lb		900g/ 1.98 lb	
ENVIRONMENT	COOLING	With fan		Fanless				Fanless		Fanless		Fanless	
	OPERATING TEMPERATURE	0 °C to +45 °C (32 °F to 113 °F)		with Intel® Core™ i3/i5: 0 °C to + 65 °C (32 °F to 149 °F) with Intel® Core™ i7/XEON®: 0 °C to + 50 °C (32 °F to 122 °F)				0 °C to 50 °C (32 °F to 122 °F)		0 °C to 50 °C (32 °F to 122 °F)		0 °C - 55 °C / 32 °F - 131 °F (if used with supplied adaptor operating temperature will be limited to 0 to 40 °C)	
	RELATIVE HUMIDITY	93 % @40 °C (non-condensing)		93 % @ 40 °C (non-condensing)				0 % - 90 %		0 % - 90 %		93 % RH @ 40 °C (non-condensing)	
	VIBRATION	Vibration operational: IEC 60068-2-6: 5-500 Hz, 1G		Vibration operational: IEC 60068-2-6 10-150 Hz, 1 G				-		-		operational: IEC 60068-2-6, 5 - 500 Hz, 2G	
	SHOCK	Shock operational: IEC 60068-2-27 half sine 11 ms 15 G		Shock operational: IEC 60068-2-27 half sine 11 ms 15 G				-		-		operational: IEC 60068-2-27, half sine 11 ms 15G	
	IP PROTECTION CLASS	IP 20		IP 20				-		-		-	
APPROVALS	SAFETY CERTIFICATIONS	CE/CB/NRTL		UL/CB/CE/FCC				CE/ FCC		CE/ FCC		UL/ CE/ FCC	

¹⁾No moving parts ²⁾No battery required ³⁾Hold up time >10 ms ⁴⁾Remote system diagnostics
⁵⁾Rescue Button (RSQ) Operation ⁶⁾Power On/Off options ^{*}Optional ^{**}based on WIBU Systems

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.

About the Intel® Internet of Things Solutions Alliance

From modular components to market-ready systems, Intel and the 400+ global member companies of the Intel® Internet of Things Solutions 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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