

# tBOX324-894-FL

Fanless Embedded System with 7th/6th Gen Intel® Core™ i7/i5/i3 & Celeron® Processor for Railway, Vehicle and Marine PC

## Features

- CE, LVD, FCC, EN 50155, EN 45545-2, E-Mark, DNV 2.4 and IEC 60945 certified
- 7th/6th gen Intel® Core™ i7/i5/i3 & Celeron® processors
- Fanless and wide operating temperatures from -40°C to +70°C
- 2 DDR4-1866/2133 SO-DIMM for up to 32GB of memory
- Typical 12/24/110 VDC power supply
- Intelligent solution of vehicle power management (ACC ignition)
- 2 swappable 2.5" SATA drives
- 3 PCI Express Mini Card slots and 1 SIM card slot



▲ Front view



▲ Rear view

## Specifications

Standard Color	Silver black
Construction	Aluminum extrusion and heavy-duty steel, IP30
CPU (supports Kaby Lake-U & Skylake-U platform)	Intel® Core™ i7-7600U 2.8 GHz*/i7-6600U 2.6 GHz* Intel® Core™ i5-7300U 2.6 GHz*/i5-6300U 2.4 GHz* Intel® Core™ i3-7100U 2.4 GHz*/i3-6100U 2.3 GHz* Intel® Celeron® 3965U 2.2 GHz*/3955U 2.0 GHz* *2 Core @TDP: 15W
Chipset	SoC integrated
System Memory	2 x DDR4-1866/2133 SO-DIMM, up to 32GB
BIOS	AMI
System I/O Outlet	Serial 1 x DB9 isolated RS-232/422/485 2 x Terminal block isolated RS-232/422/485 (isolation voltage: 2 kV) CANBus 1 x DB9 isolated CANBus 2.0 A/B (isolation voltage: 2 kV) Display 1 x DVI-I (up to 1920 x 1200 @60Hz, 1 x VGA and 1 x DVI-D included) 1 x VGA Audio 1 x Mic-in, 1 x Line-out Ethernet Railway: 4 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT) Marine/Vehicle: 4 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT) USB 4 x USB 3.0 DIO 1 x Terminal block isolated DIO 4-in/4-out (isolation voltage: 2 kV) Others 1 x Reset button 1 x Remote switch 3 x Antenna opening
Expansion Interface	3 x Full-size Rev.1.2 PCI Express Mini Card slot: • 2 x USB/PCIe • 1 x USB/PCIe with SIM socket
Storage	SATA Drive 2 x Swappable 2.5" SATA drive (9.5 mm height), Intel® RAID 0/1 supported CFast 1 x CFast™
Watchdog Timer	255 levels, 1 to 255 sec.
Power	Power Supply Railway: 1 x M12, 24/110 VDC Vehicle: 1 x terminal block, 12/24 VDC with ACC ignition Marine: 1 x terminal block, 24 VDC Power consumption 24V/2.2A, 110V/0.7A

System Indicator	4 x LED indicator for LAN activity 4 x LED indicator for LAN linked 1 x LED indicator for SATA drive activity 1 x LED indicator for power
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*
Humidity	0% to 95%, non-condensing
Dimensions	288.5 mm (11.36") (W) x 211.3 mm (8.32") (D) x 85.75 mm (3.38") (H) (without wall mount)
Mounting	Wall mount
Weight (net/gross)	5 kg (11.02 lb)/6.65 kg (14.66 lb)
Certifications	CE (Class A), FCC (Class A), EN 50155, EN 45545-2**, E-Mark, DNV 2.4 and IEC 60945 certified
EMC	CE/FCC EN 61000-6-4 (Class A), EN 61000-6-2, FCC part 15 B (Class A) EN 50155 EN 50121-3-2, IEC 62236-3-2 DNV 2.4 IEC 61000-4-2, IEC 61000-4-3, IEC 61000-IEC 60945 4-4, IEC 61000-4-5, IEC 61000-4-6, CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4 E-Mark ECE-R10
LVD	EN 60950-1
Vibration Endurance	3 Grms w/ SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1 Grms w/ HDD (5 to 500Hz, X/Y/Z direction; random, operating) 2 Grms w/ HDD & Anti-Vibration Kit (5 to 500Hz, X/Y/Z direction; random, operating) MIL-STD-810G, Method 514.6C-VI Category 4 compliant EN 50155 EN(IEC) 61373 category 1 class B DNV 2.4/IEC 60945 IEC 60068-2-6
Shock (operating)	EN 50155 EN (IEC) 61373 category 1 class B, half-sine pulse, 5g, 30ms (longitudinal direction), 3g, 30ms (vertical/transverse direction) DNV 2.4 IEC 60068-2-1, IEC 60068-2-2, IEC 60068-IEC 60945 2-6, IEC 60068-2-30
EOS Support	Windows® 10 64-bit, Windows® 7 64/32-bit (for 6th gen Intel® CPU), Ubuntu 18.04
Software Support	AMS.AXView

\*Wide Temperature. All W.T. supported products have to be sorted by Axiomtek.  
\*\*For EN45545-2, test report is available exclusively

## Ordering Information

Standard	
tBOX324-894-FL-Cel/i3/i5/i7-DIO-24MRDC-CAN (P/N: E26N324103) for i7-7600U (P/N: E26N324102) for i5-7300U (P/N: E26N324101) for i3-7100U (P/N: E26N324100) for 3965U	Fanless embedded system with 7th gen Intel® Kaby Lake Core™ i7/i5/i3 & Celeron® for railway PC, 4 USB 3.0, DVI-I, 4 M12 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, M12 DC-in, and 24/110 VDC
tBOX324-894-FL-Cel/i3/i5/i7-DIO-110MRDC-CAN-G (P/N: E26N324121) for i7-7600U (P/N: E26N324120) for i5-7300U (P/N: E26N324119) for i3-7100U (P/N: E26N324118) for 3965U	Fanless embedded system with 6th gen Intel® Skylake Core™ i7/i5/i3 & Celeron® for railway PC, 4 USB 3.0, DVI-I, 4 M12 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, M12 DC-in, and 110 VDC
tBOX324-894-FL-Cel/i3/i5/i7-DIO-TVDC-CAN-GND (P/N: E26N324112) for i7-7600U (P/N: E26N324111) for i5-7300U (P/N: E26N324110) for i3-7100U (P/N: E26N324109) for 3965U	Fanless embedded system with 7th gen Intel® Kaby Lake Core™ i7/i5/i3 & Celeron® for vehicle PC, 4 USB 3.0, DVI-I, 4 RJ-45 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, terminal block DC-in, ACC ignition, and 12/24 VDC
tBOX324-894-FL-Cel/i3/i5/i7-DIO-TMDC-CAN-GND (P/N: E26N324117) for i7-7600U (P/N: E26N324115) for i5-7300U (P/N: E26N324114) for i3-7100U (P/N: E26N324113) for 3965U	Fanless embedded system with 7th gen Intel® Kaby Lake Core™ i7/i5/i3 & Celeron® for marine PC, 4 USB 3.0, DVI-I, 4 RJ-45 GbE LANs, 3 COM, CAN, DIO, Mic-in & Line-out, two 2.5" SATA trays, terminal block DC-in, and 24 VDC

Kaby Lake Platform




Skylake Platform



\*MRDC: M12 DC-in connector, railway SKU, DC voltage input  
 \*TVDC: terminal block DC-in connector, vehicle SKU, DC voltage input  
 \*TMDC: terminal block DC-in connector, marine SKU, DC voltage input  
 \*GND or G: with grounding opening & screw

## Optional

Anti-vibration Kit (P/N: 8816N5008A0E)	For in-vehicle/rolling stock which improves HDD stability in NVR applications	
Communication Modules	8816N3239A0E 3G UC20GKit for tBOX/UST (3G ANT) (E) 8816N3235A0E 3G/GPS UC20GKit tBOX/UST (3G/GPS ANT) (E) 8812C1201A0E AP12356 with WT Wi-Fi kit for tBOX/ICO SFP (E) 881745001A0E GPS Kit M8N w/o adapter for tBOX/UST SFP (E) 88160620BA0E LTE SIMCOM SIM7100 (EU) for tBOX/UST SFP (E) 881745000A0E LTE+GPS SIM7100EU kit for tBOX/UST SFP (E) 8816N5005A0E LTE+GPS SIM7100C (TW) kit tBOX(20) SFP (E) 8816N5007A0E LTE+GPS SIM7100 (JPE) kit tBOX (20) SFP (E)	
AC to DC Adapter	50906D24000E Adapter 24V/120W, wire only, FSP120-AAAN3 50966224010E Adapter 24V 90W, M12 A-code 5P FSP090AAAN3	

\*Specifications and certifications may vary based on different requirements.

## Power Protection

OCP (over current protection)  
 OVP (over voltage protection)  
 UVP (under voltage protection)  
 RPP (reverse polarity protection)  
 ISO 7637-2 pulse 1, 2a, 2b, 3a, 3b, 4 (vehicle version)  
 Setting for in-vehicle battery protection: system will be automatically turned down at low voltage level  
 Setting for ignition control: system will activate a counter while in-vehicle battery at low voltage, ACC-ON delay and shut down delay

## Dimensions

