

# tBOX324-894-FL

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



▲ Front view



▲ Rear view



## Features

- CE, LVD, FCC, EN 50155, EN 45545-2, E-Mark, DNV 2.4 and IEC 60945 certified
- 7th Gen Intel® Core™ i7/i5/i3 processor
- Fanless design with wide operating temperature range from -40°C to +70°C
- 2 DDR4-1866/2133 SO-DIMM for up to 32GB of memory
- Supports standard 12/24/110 VDC power input
- Intelligent solution of vehicle power management (smart ignition)
- 2 swappable 2.5" SATA drives
- 3 PCI Express Mini Card slots and 1 SIM card slot

## 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* Intel® Core™ i5-7300U 2.6 GHz* Intel® Core™ i3-7100U 2.4 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 isolated RS-232/422/485 terminal block (2 kV isolation voltage)	
	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 isolated DIO terminal block with 4-in/4-out (2 kV isolation voltage)	
	Others	1 x reset button 1 x remote switch 3 x antenna opening	

## Specifications

Expansion Interface	3 x full-size Rev. 1.2 PCI Express Mini Card slot: <ul style="list-style-type: none"> <li>• 2 x USB/PCIe</li> <li>• 1 x USB/PCIe with SIM socket</li> </ul>	
Storage	SATA Drive	2 x 2.5" swappable 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 smart ignition Marine: 1 x Terminal block, 24 VDC
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*	
Relative Humidity	0% to 95% relative humidity, non-condensing	
Dimensions (W x D x H)	288.5 x 211.3 x 85.75 mm (11.36" x 8.32" x 3.38") (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, and 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 61000-4-4, IEC 61000-4-5, and IEC 61000-4-6
	IEC 60945	CISPR 16-1-1, CISPR 16-1-2, and CISPR 16-1-4
	E-Mark	ECE-R10
LVD	EN 60950-1	
Vibration Endurance	3 Grms with SSD (5 to 500Hz, X/Y/Z direction; random, operating) 1 Grms with HDD (5 to 500Hz, X/Y/Z direction; random, operating) 2 Grms with HDD and 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 60945	IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-6, and IEC 60068-2-30
EOS Support	Windows® 10 64-bit, Linux	
Software Support	Axiomtek EAPI	




\*Wide Temperature. All W.T. supported products have to be sorted by Axiomtek.

\*\*The EN 45545-2 test report is available exclusively



## Ordering Information

### Standard

tBOX324-894-FL-i3/i7-DIO-110MRDC-CAN-G (P/N: E26N324121) for i7-7600U (P/N: E26N324119) for i3-7100U	Fanless embedded system with 7th Gen Intel® Core™ i7/i3, 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-i7-DIO-TVDC-CAN-GND (P/N: E26N324112) for i7-7600U	Fanless embedded system with 7th Gen Intel® Core™ i7, 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, smart ignition, and 12/24 VDC	
tBOX324-894-FL-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	Fanless embedded system with 7th Gen Intel® Core™ i7/i5/i3, 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	


\*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	E29R303101 E29R327101 E29R318109 E29R328100	Wi-Fi 5 MCR822CE-P kit GPS RYMU8NI kit LTE NL668-EAU kit GPS RYP8838 kit	
AC to DC Adapter	509000001500 509000002200	PWS FSP120-AAAN3 (9NA1206647) FSP 120W (wire type) PWS 9NA0908344 FSP 90W (M12 connector for MRDC series)	
Cable/Power Cord	594B8120B30E 594N3202730E 599000001100 59906000010E 59903000000E 59905000000E 59904010000E 590000065800	DC-in cable M12 female 5P 180 cm without ACC LAN cable M12-A male 8P to RJ-45 Power cord YP-12/YC-12_CY-U0032 YUNG_LI 1830 mm Power cord YP-12/YC-12 (Japan) Power cord YP-22/YC-12 (Europe) Power cord YP-35/YC-12 (Australia) Power cord/UK YP-61A/YC-12 L=1830 mm CBL SW_to_HS4P 300 mm (remote switch cable)	

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

## Packing List

- 1 x wall mount bracket
- 2 x SATA drive key
- 4 x DRAM thermal pad
- 4 x foot pad
- 1 x power DC-in terminal block 3-pin connector (for TMDC and TVDC series only)
- 1 x 12-pin terminal block connector for DIO
- 2 x 10-pin terminal block connector for COM



## 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, and 4 (vehicle version)

Setting for in-vehicle battery protection: the system will be automatically turned down at low voltage level.

Setting for ignition control: system will activate a counter at low battery voltage, with IGN ON and IGN OFF delay.

## Dimensions

