

# tBOX500-510-FL NEW

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

## Features

- EN 50155, EN 50121, E-Mark, ISO 7637 and DNV 2.4 certified and EN 45545-2, IEC 60945 compliant
- 7th gen Intel® Core™ i7/i5/i3 & Celeron® processors (Codename: Kaby Lake)
- 2 optional I/O module slots
- 2 DDR4-1866/2133 SO-DIMM, up to 32GB
- Typical 12/24/110 VDC power input for different power modules, available with various transportation certificates
- Fanless design and suitability for wide operating temperatures from -40°C to +70°C
- Intelligent solution of vehicle power management
- 2 hot swappable, power control 2.5" SATA trays
- 3 full-size PCIe Mini Card slots and 2 SIM card sockets



## Specifications

Standard Color	Silver				
Construction	Aluminum extrusion and heavy-duty steel				
CPU	7th generation Intel® Core™ i7-7600U 2C @ 2.8 ~ 3.9 GHz 7th generation Intel® Core™ i5-7300U 2C @ 2.6 ~ 3.5 GHz 7th generation Intel® Core™ i3-7100U 2C @ 2.4 GHz Intel® Celeron® 3965U 2C @ 2.2 GHz				
System Memory	2 x DDR4-1866/2133 SO-DIMM, up to 32GB				
Chipset	SoC integrated				
BIOS	AMI				
System I/O Outlets	<table border="0"> <tr> <td>Rear Side</td> <td>1 x M12 or Terminal block DC-in (optional) 1 x PoE power-in (optional) 2 x modular IO slot</td> </tr> <tr> <td>Front Side</td> <td>4 x LED indicator 2 x audio (mic-in/line-out) 1 x RJ-45 10/100/1000 Mbps Ethernet 4 x USB 3.0 1 x DVI-I 1 x DB9 serial console or RS-232/422/485 1 x remote switch 1 x reset bottom</td> </tr> </table>	Rear Side	1 x M12 or Terminal block DC-in (optional) 1 x PoE power-in (optional) 2 x modular IO slot	Front Side	4 x LED indicator 2 x audio (mic-in/line-out) 1 x RJ-45 10/100/1000 Mbps Ethernet 4 x USB 3.0 1 x DVI-I 1 x DB9 serial console or RS-232/422/485 1 x remote switch 1 x reset bottom
Rear Side	1 x M12 or Terminal block DC-in (optional) 1 x PoE power-in (optional) 2 x modular IO slot				
Front Side	4 x LED indicator 2 x audio (mic-in/line-out) 1 x RJ-45 10/100/1000 Mbps Ethernet 4 x USB 3.0 1 x DVI-I 1 x DB9 serial console or RS-232/422/485 1 x remote switch 1 x reset bottom				
Watchdog Timer	255 levels, 0 ~ 255 secs./mins.				
Storage	2 x hot swappable, power control 2.5" 7/9.5 mm SATA tray 1 x mSATA				
Expansion Interface	3 x full-size PCIe Mini Card slot 2 x SIM card slot				
System Indicator	1 x LED indicator for system power 1 x LED indicator for HDD activities 2 x TBD				
Power Supply	Power input: 9 ~ 36 VDC, typical: 12/24 VDC (E-Mark) Power input: 14 ~ 32 VDC, typical: 24 VDC (EN 50155, DNV 2.4) Power input: 16.8 ~ 137.5 VDC, typical: 24/48/72/96/110 VDC (EN 50155)				
Operating Temperature	-40°C ~ +70°C (-40°F ~ +158°F) with W.T. SSD -25°C ~ +55°C (-13°F ~ +131°F) with W.T. HDD				
Humidity	5% ~ 95%, non-condensing				
Vibration Endurance	5 Grms w/ SSD (5 ~ 500 Hz, X/Y/Z direction; random) 2 Grms w/ HDD (5 ~ 500 Hz, X/Y/Z direction; random)				
Dimensions	321 mm (12.64") (W) x 210.2 mm (8.28") (D) x 75.3 mm (2.96") (H)				
Weight	5 kg (11 lb)/6.5 kg (14.33 lb)				



▲ Front view



▲ Rear view

Certificates	CE (Class A), FCC, EN 50155, EN 50121, E-Mark, ISO 7637, and DNV 2.4 certified; EN 45545-2 and IEC 60945 compliant
EOS support	Windows® 10 x64, Linux

## Ordering Information

Standard	
tBOX500-510-FL-Celeron-24MRDC	Fanless railway-grade embedded system, Intel® Celeron® 3965U 2.2 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-i3-24MRDC	Fanless railway-grade embedded system, Intel® Core™ i3-7100U 2.4 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-i5-24MRDC	Fanless railway-grade embedded system, Intel® Core™ i5-7300U 2.6 ~ 3.5 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-i7-24MRDC	Fanless railway-grade embedded system, Intel® Core™ i7-7600U 2.8 ~ 3.9 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-Celeron-TVDC	Fanless vehicle-grade embedded system, Intel® Celeron® 3965U 2.2 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays, 9 ~ 36VDC, ACC ignition
tBOX500-510-FL-i3-TVDC	Fanless vehicle-grade embedded system, Intel® Core™ i3-7100U 2.4 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays, 9 ~ 36VDC, ACC ignition
tBOX500-510-FL-i5-TVDC	Fanless vehicle-grade embedded system, Intel® Core™ i5-7300U 2.6 ~ 3.5 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays, 9 ~ 36VDC, ACC ignition
tBOX500-510-FL-i7-TVDC	Fanless vehicle-grade embedded system, Intel® Core™ i7-7600U 2.8 ~ 3.9 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays, 9 ~ 36VDC, ACC ignition
tBOX500-510-FL-Celeron-TMDC	Fanless marine-grade embedded system, Intel® Celeron® 3965U 2.2 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-i3-TMDC	Fanless marine-grade embedded system, Intel® Core™ i3-7100U 2.4 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-i5-TMDC	Fanless marine-grade embedded system, Intel® Core™ i5-7300U 2.6 ~ 3.5 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays
tBOX500-510-FL-i7-TMDC	Fanless marine-grade embedded system, Intel® Core™ i7-7600U 2.8 ~ 3.9 GHz processor, four USB 3.0, DVI-I, RJ-45 LAN, serial console, mic-in/line-out, two 2.5" SATA trays

### Value Added I/O Modules

#1 M12 PoE Gb Ethernet (P/N: AX93718 + AX98247)	4 x M12 (A-Code) LAN board with PoE/PoE+ Supporting PoE/PoE+, maximum up to 120W per module
M12 Gb Ethernet (P/N: AX93718)	4 x M12 (A-Code) LAN board
#2 RJ-45 PoE Gb Ethernet (P/N: AX93719 + AX98247)	4 x RJ-45 GbE LAN board with PoE/PoE+ Supporting PoE/PoE+, maximum up to 120W per module
RJ-45 Gb Ethernet (P/N: AX93719)	4 x RJ-45 GbE LAN board
#3 Isolated RS-232/422/485 (P/N: AX93720)	4 x 4-wire signal at RS-232 (TX/RX/CTS/RTS) Magnetic isolation, Isolation level: 1kV
#4 Isolated CAN bus 2.0 A/B (P/N: AX93734)	4 x isolated CANbus 2.0 A/B Magnetic isolation, Isolation level: 1kV
#5 Isolated DIO 8-in/8-out (P/N: AX93721)	Optical isolation, Isolation level: 1Kv
#6 Mini PCI Express + SIM (P/N: AX93735)	2 x full-size mini PCI Express card slot 2 x SIM card socket
#7 Video & Audio-in + mini PCIe capture card (P/N: AX93731)	1 x full-size mini PCI Express card slot 4 x video-in and 1 x audio-in (BNC connector)

### Optional

- 2.5" SATA HDD/SSD
- mSATA SSD
- 3G/4G/GPS module
- Wi-Fi/Bluetooth module
- Audio module
- PoE PSU 120W, go with (AX93718 + AX98247) and (AX93719 + AX98247)

\*Specifications and certifications may vary according to various options.

### Power Protection

- SCP (short circuit protection)
- OVP (over voltage protection)
- UVP (under voltage protection)

### Vehicle Version

- ISO 7637 pulse 1/2/3/4/5a
- Setting for battery protection: Low voltage or very low voltage
- Setting for ignition control: Low voltage counter, ACC-ON delay or shut down delay

### Dimensions

