

# tBOX324-894-FL NEW

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

## 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® (Kaby Lake-U SoC)
- Modular I/O design, 4 GbE LANs (M12/RJ-45), 3/4 isolated COMs, 1 CANbus (optional)
- 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 swappable 2.5" SATA drives
- 3 PCIe Mini Card slots and 1 SIM card socket



▲ Front view



▲ Rear view

## Specifications

|                       |  |           |   |            |   |
|-----------------------|--|-----------|---|------------|---|
| Standard Color        | Silver black   |           |   |            |   |
| Construction          | Aluminum extrusion and heavy-duty steel  |           |   |            |   |
| CPU                   | 7th generation Intel® Core™ i7-7600U 2C @ 2.8 ~ 3.9 GHz<br>7th generation Intel® Core™ i5-7300U 2C @ 2.6 ~ 3.5 GHz<br>7th generation Intel® Core™ i3-7100U 2C @ 2.4 GHz<br>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 Outlet     | <table border="0"> <tr> <td>Rear Side</td> <td>1 x M12 5P/TB 3P power connector<br/>1 x Isolated COM<br/>1 x DB9 isolated COM or CANbus (optional)<br/>2 x 2 x5P TB isolated RS-232/422/485<br/>1 x 2 x6P TB isolated DIO 4-in/4-out (optional)<br/>1 x DVI-I<br/>1 x VGA<br/>1 x Remote switch<br/>2 x Audio, mic-in/line-out<br/>4 x M12 A-coded GbE LAN<br/>3 x Antenna opening</td> </tr> <tr> <td>Front Side</td> <td>8 x LED indicator (for LAN link/activity)<br/>1 x LED indicator for HDD activity<br/>1 x LED indicator for power<br/>4 x USB 3.0<br/>1 x CFast™<br/>1 x Reset button<br/>2 x 2.5" SATA drive tray</td> </tr> </table> | Rear Side | 1 x M12 5P/TB 3P power connector<br>1 x Isolated COM<br>1 x DB9 isolated COM or CANbus (optional)<br>2 x 2 x5P TB isolated RS-232/422/485<br>1 x 2 x6P TB isolated DIO 4-in/4-out (optional)<br>1 x DVI-I<br>1 x VGA<br>1 x Remote switch<br>2 x Audio, mic-in/line-out<br>4 x M12 A-coded GbE LAN<br>3 x Antenna opening | Front Side | 8 x LED indicator (for LAN link/activity)<br>1 x LED indicator for HDD activity<br>1 x LED indicator for power<br>4 x USB 3.0<br>1 x CFast™<br>1 x Reset button<br>2 x 2.5" SATA drive tray |
| Rear Side             | 1 x M12 5P/TB 3P power connector<br>1 x Isolated COM<br>1 x DB9 isolated COM or CANbus (optional)<br>2 x 2 x5P TB isolated RS-232/422/485<br>1 x 2 x6P TB isolated DIO 4-in/4-out (optional)<br>1 x DVI-I<br>1 x VGA<br>1 x Remote switch<br>2 x Audio, mic-in/line-out<br>4 x M12 A-coded GbE LAN<br>3 x Antenna opening  |           |   |            |   |
| Front Side            | 8 x LED indicator (for LAN link/activity)<br>1 x LED indicator for HDD activity<br>1 x LED indicator for power<br>4 x USB 3.0<br>1 x CFast™<br>1 x Reset button<br>2 x 2.5" SATA drive tray  |           |   |            |   |
| Watchdog Timer        | 255 levels, 0 ~ 255 secs./mins.  |           |   |            |   |
| Storage               | 2 x 2.5" 7/9.5mm SATA drive<br>1 x CFast™  |           |   |            |   |
| Expansion Interface   | 3 x full-size PCIe Mini Card slot<br>1 x SIM card slot   |           |   |            |   |
| System Indicator      | 1 x LED indicator for system power<br>1 x LED indicator for HDD active<br>4 x LED indicator for LAN activated<br>4 x LED indicator for LAN linked  |           |   |            |   |
| Power Supply          | Power input: 9 ~ 36 VDC, typical: 12/24 VDC (eMark)<br>Power input: 14 ~ 32 VDC, typical: 24 VDC (EN 50155, DNV 2.4)<br>Power input: 77 ~ 137.5 VDC, typical: 110 VDC (EN 50155)   |           |   |            |   |
| Operating Temperature | -40°C ~ +70°C (-40°F ~ +158°F) with W.T. SSD<br>-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)<br>1 Grms w/ HDD (5-500 Hz, X/Y/Z direction; random)             |
| Dimensions          | 288 mm (11.33") (W) x 211 mm (8.3") (D) x 85.7 mm (3.37") (H)  |
| Weight              | 5 kg (11 lb)/6.5 kg (14.33 lb)   |
| 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, Linux   |

## Ordering Information

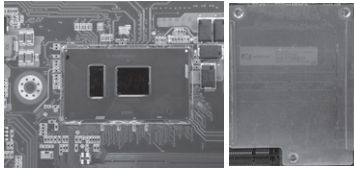
| Standard                            |  |
|-------------------------------------|--|
| tBOX324-894-FL-Celeron-DIO-12/24VDC | Fanless vehicle embedded system with Intel® Celeron® processor 3965U, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 9 ~ 36 VDC               |
| tBOX324-894-FL-i3-DIO-12/24VDC      | Fanless vehicle embedded system with Intel® Core™ i3-7100U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 9 ~ 36 VDC               |
| tBOX324-894-FL-i5-DIO-12/24VDC      | Fanless vehicle embedded system with Intel® Core™ i5-7300U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 9 ~ 36 VDC               |
| tBOX324-894-FL-i7-DIO-12/24VDC      | Fanless vehicle embedded system with Intel® Core™ i7-7600U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 9 ~ 36 VDC               |
| tBOX324-894-FL-Celeron-DIO-24VDC    | Fanless railway/marine embedded system with Intel® Celeron® processor 3965U, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 4 ~ 32 VDC        |
| tBOX324-894-FL-i3-DIO-24VDC         | Fanless railway/marine embedded system with Intel® Core™ i3-7100U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 14 ~ 32 VDC       |
| tBOX324-894-FL-i5-DIO-24VDC         | Fanless railway/marine embedded system with Intel® Core™ i5-7300U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 14 ~ 32 VDC       |
| tBOX324-894-FL-i7-DIO-24VDC         | Fanless railway/marine embedded system with Intel® Core™ i7-7600U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 14 ~ 32 VDC       |
| tBOX324-894-FL-Celeron-DIO-110VDC   | Fanless railway embedded system with Intel® Celeron® processor 3965U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 77 ~ 137.5 VDC |
| tBOX324-894-FL-i3-DIO-110VDC        | Fanless railway embedded system with Intel® Core™ i3-7100U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 77 ~ 137.5 VDC           |
| tBOX324-894-FL-i5-DIO-110VDC        | Fanless railway embedded system with Intel® Core™ i5-7300U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 77 ~ 137.5 VDC           |
| tBOX324-894-FL-i7-DIO-110VDC        | Fanless railway embedded system with Intel® Core™ i7-7600U processor, 4 USB, VGA+DVI, 4 GbE LANs (M12), 3 COM, 1 COM or CAN, DIO, 77 ~ 137.5 VDC           |

**Optional**

- 2.5" SATA HDD/SSD
- mSATA SSD
- 3G/4G/GPS module
- Wi-Fi/Bluetooth module
- Audio module
- CANbus module
- Capture card module
- I/O module card

\*Specifications and certificates may vary subject to options required.

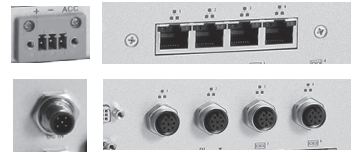
**Expansion & Installation**



Onboard processor design and unique thermal/heat sink plate on the system memory for great reliability and stability



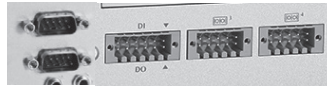
Swappable and Lockable SATA3 HDD/SSD, USB 3.0 and CFast



Optional M12 type for DC-in jack and LAN jack



DVI-I and VGA display



Isolated RS-232/422/485 COM ports (Optional DIO and 2 x COM module) (Optional CANbus / COM port)



3 full-size PCIe Mini Card slots and 1 SIM card slot

**Packing List**

- 1x Quick Manual
- 1x Driver CD
- 1x Screws pack
- 4x Foot pad
- 1x Wall-mount brackets
- 1x DIO female connector (optional)

**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, Shut down delay

**Dimensions**

