

# tBOX810-838-FL

Fanless Embedded System with Intel® Atom® Processor E3845/E3827 for Railway, Vehicle, and Marine PC

## Features

- CE, FCC, EN 50155, EN 45545-2, E-Mark, DNV 2.4 and IEC 60945 certified
- Intel® Atom® processor E3845 or E3827
- Fanless and Wide operating temperatures from -40°C to +70°C
- DDR3L-1333 4GB memory onboard
- Compact size with multiple I/Os
- Intelligent solution of vehicle power management (ACC ignition)
- 2 PCI Express Mini Card slots and 1 SIM card slot



▲ Front view



Mic-in, Line-out, Line-in (optional)



Antenna opening

▲ Rear view

M12/Phoenix DC power input

M12/RJ-45 GbE LAN



## Specifications

Standard Color	Silver black
Construction	Aluminum extrusion and heavy-duty steel, IP40
CPU	Intel® Atom® E3845 4C @1.91 GHz, TDP: 10W Intel® Atom® E3827 2C @1.75 GHz, TDP: 8W
Chipset	SoC integrated
System Memory	DDR3L-1333, 4GB memory onboard
BIOS	AMI
System I/O Outlet	Serial 2 x DB9 serial console or RS-232/422/485 Display 1 x VGA (supports up to 1920 x 1080 @60Hz) Audio 1 x Mic-in, 1 x Line-out, 1 x Line-in (optional, occupied 1 x PCIe Mini Card slot) Ethernet Railway: 2 x M12 A-coded 10/100/1000 Mbps Ethernet (Intel® i210-IT) Marine/Vehicle: 2 x RJ-45 10/100/1000 Mbps Ethernet (Intel® i210-IT) USB 2 x USB 2.0 DIO 1 x DB9 8-bit programmable DIO Others 1 x Reset button 1 x Remote switch 4 x Antenna opening
Expansion Interface	2 x Full-size Rev.1.2 PCI Express Mini Card slot: • 1 x USB/PCIe with SIM socket • 1 x mSATA/USB/PCIe
Storage	SATA Drive 1 x Internal 2.5" SATA drive (9.5 mm height) mSATA 1 x mSATA (occupied 1 x PCI Express Mini Card slot)***
Watchdog Timer	255 levels, 1 to 255 sec.
Power	Power Supply Railway: 1 x M12 DC-in, 9 to 36 VDC (typical: 24VDC) Vehicle: 1 x terminal block DC-in, (typical: 12/24 VDC) with ACC ignition Marine: 1 x terminal block /M12 DC-in, 9 to 36 VDC (typical: 24 VDC) Power Consumption 24V, 1A

System Indicator	1 x LED indicator for SATA drive activity 1 x LED indicator for power 2 x LED indicator for LAN activity 2 x Programmable
Operating Temperature	-40°C to +70°C (-40°F to +158°F) with W.T. peripheral*
Humidity	0% to 95%, non-condensing
Dimensions	164.1 mm (6.46") (W) x 108 mm (4.25") (D) x 44 mm (1.73") (H) (without wall mount)
Mounting	Wall mount, Din-rail
Weight (net/gross)	0.77 kg (1.70 lb)/2 kg (4.41 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 55022 (Class A), EN 55024, FCC part 15 B (Class A) EN 50155 EN 50121-3-2, IEC 62236-3-2 E-Mark ECE-R10 DNV 2.4/IEC 60945 IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-4
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	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 60068-2-6, IEC 60068-2-30
EOS Support	Windows® 10 64-bit, Windows® 8, Windows® 7 64/32-bit, VxWorks7, Ubuntu 15.10
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

\*\*\* Not available on tBOX810 w/Audio SKU, see ordering information


## Ordering Information

### System

tBOX810-838-FL-E3827/E3845-MRDC (P/N: E26N810106*) for E3845 (P/N: E26N810107*) for E3827 (P/N: E26N810109) for E3845 & Audio	Fanless railway grade embedded system with Intel® Atom® processor E3827/E3845, 4GB DRAM, 2 M12 GbE LANs, M12 DC-in, 2 USB, VGA, 2 COM, DIO, audio mic-in/line-in/line-out, and 24 VDC	
*without Audio & CAN connector		
tBOX810-838-FL-E3827/E3845-TVDC/MVDC (P/N: E26N810104*) for E3845 (P/N: E26N810105*) for E3827 (P/N: E26N810110) for E3845 & Audio (P/N: E26N810122) for E3827 & CAN (P/N: E26N810100*) for E3845 & M12 DC-in (P/N: E26N810102*) for E3827 & M12 DC-in	Fanless vehicle grade embedded system with Intel® Atom® processor E3827/E3845, 4GB DRAM, 2 RJ-45/M12 GbE LANs, terminal block/M12 DC-in, 2 USB, VGA, 2 COM, DIO, CAN, audio mic-in/line-in/line-out, with ACC ignition, and 12/24 VDC	
*without Audio & CAN connector		
tBOX810-838-FL-E3827/E3845-TMDC (P/N: E26N810114*) for E3845 (P/N: E26N810119) for E3827 & CAN (P/N: E26N810120) for E3845 & CAN	Fanless marine grade embedded system with Intel® Atom® processor E3827/E3845, 4GB DRAM, 2 RJ-45 GbE LANs, terminal block DC-in, 2 USB, VGA, 2 COM, DIO, CAN, and 24 VDC	
*without Audio & CAN connector		

\*MRDC: M12 DC-in connector, railway SKU, DC voltage input  
 \*TVDC: terminal block DC-in connector, vehicle SKU, DC voltage input  
 \*MVDC: M12 DC-in connector, vehicle SKU, DC voltage input  
 \*TMDC: terminal block DC-in connector, marine SKU, DC voltage input

### Optional

Anti-vibration Kit (P/N: 8816N1000A0E)	For in-vehicle/rolling stock applicable systems which improves HDD/SSD stability	
Communication Modules	8816N3239A0E 3G UC20GKit for tBOX/UST (3G ANT) (E) 8816N3235A0E 3G/GPS UC20GKit for tBOX (3G/GPS ANT) 8812C300CA0E AP12356WT Wi-Fi kit for ICO300 SFP (E) 8816N8105A0E GPS kit M8N w/o adapter for tBOX SFP (E) 8816N3303A0E LTE SIM7100 (EU)kit tBOX (20) SFP (E) 8816N3304A0E LTE SIM7100 (JPE)kit tBOX (20) SFP (E) 8816N500AA0E LTE SIM7100A(US) kit (20) UST/tBOX 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

