TREK-570

Compact In-Vehicle Computing Box for Fleet Management

Features

- Supports real-time rear-view monitoring
- Dual independent display/audio output for both driver and passenger for IVI and digital signage applications
- Rugged platform with 5M3 shock and vibration tolerance, -30 ~ 70°C wide temperature without airflow
- Vehicle diagnostic interface with configurable protocols support: CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587)
- Built-in GNSS, optional WLAN, Bluetooth, LTE WWAN

Introduction

The TREK-570 is a compact and cost-effective in-vehicle computing box, powered by an Intel Atom® E3826 SOC. It can be seamlessly paired with TREK-303/306 in-vehicle smart displays through a single-cable connection. Designed for fleet management applications, the TREK-570 boasts a wide operating temperature range and a MIL-STD-810G certification, ensuring resistance to shock, vibration, and durability in harsh environments.

An intelligent vehicle power management (VPM 2.0) chip is included in the TREK-570 to safeguard against transient voltage (ISO 7637-2/SAE J1455/SAE J1113). This chip also enables programmable functions, including ignition on/off, delay on/off, and low battery monitoring. The device provides various I/O options for integrating CANbus devices and peripherals, such as a tire pressure monitoring system. Dual CAN bus ports support diverse protocols (J1939, OBD-II/ISO 15765) for streamlined vehicle diagnostics and driver behavior management.

Equipped with built-in wireless communication technologies (WLAN, WWAN, Bluetooth), the TREK-570 facilitates vehicle tracking and real-time data transmissions to a centralized control center. Additionally, it supports dual independent displays/audio outputs, making it suitable for in-vehicle infotainment and digital signage applications.

Moreover, the TREK-570 comes with Advantech's DeviceOn/iService software, a next-generation unified device management solution based on the WISE-DeviceOn platform. With support for batch operations and multi-device control, DeviceOn/iService ensures easy device configuration and deployment, facilitating convenient remote device management.

Specifications

Core	Processor	Intel Atom® E3826, dual-core, 1.46 GHz
	Memory	1 x 4 GB DDR3L SODIMM 1600 MHz, non-ECC
	Graphics	Integrated 2D/3D graphics engine
	Operating System	Win10 IoT LTSB, Linux Lubuntu 16.04
Storage	mSATA	1 x 32 GB UMLC, SQFlash mSATA, with support for system bootup
Display	Smart Display Ports[1]	1 x 12V/2A power output for TREK-30x 1 x 18-bit LVDS with 800 x 480/1024 x 768 resolution and automatic detection 1 x Line-Out2 (for TREK-30x speakers) 2 x UART (TX/RX, TX/RX/RTS) (for touchscreen, hot keys, and brightness/light sensor control) 1 x USB 2.0 Type-A 1 x Power button 1 x Reset button
	VGA	1 x DB15 (up to 2560 x 1600 resolution)
	HDMI[2]	1 x HDMI (up to 2560 x 1600 resolution)
Expansion	Edge AI	1 x full size, mini PCIe (PCUe/USB 2.0) for edge AI; supports up to Hailo 8R (13 tops)
I/O	Vehicle I/O	2 x CAN bus with raw CAN, J1939, and OBD-II/ISO 15765 support (configurable via firmware) 1 x J1708 with J1587 support 1 x 4-wire RS-485 with auto flow control
	Generic I/O	2 x 4-wire RS-232 4 x Isolated DI (dry contact) 4 x Isolated DO (open collector output, driven by relay) 1 x CVBS-In (for real-time rear view monitoring) 1 x Line-Out[3] 1 x Mic-In
	Standard I/O	1 x USB 3.0 Type-A (rear side, with cable clip) 1 x USB 2.0 Type-A (rear side, with cable clip) 1 x High-speed full RS-232, DB-9 (Pin 9 = ring, 12/5 V @0.5 A in BOM; optional via jumper setting) 1 x Giga LAN, with locking RJ-45 connector
	LED Indicators	5 x LEDs: 1 x Power (red), 1 x Storage (yellow), 1 x WLAN (green), 1 x WWAN (green), 1 x GPS (yellow)
	Power Button	Via TREK-30x in-vehicle smart display; system is powered on by vehicle ignition as a default
	Reset Button	1 x Reset button (rear side)

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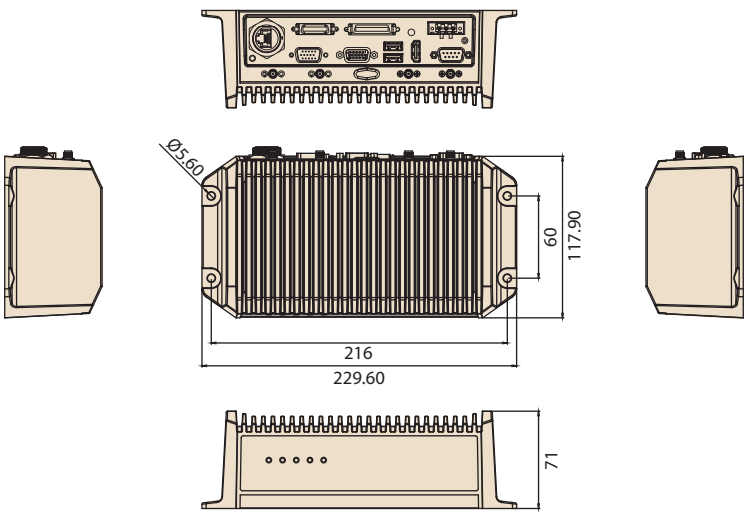
Specifications Cont.

RF	WLAN + Bluetooth	IEEE 802.11a/b/g/n/ac/ax + Bluetooth V5.X via full mini PCIe slot (optional high-power WLAN/WLAN roaming available upon request)
	WWAN	4G (LTE, HSPA+, GSM/GPRS/EDGE, EV-DO Rev. a1, 1xRTT) Sierra AirPrime WP76XX via full mini PCIe slot (default: WP7610 for US/WP7607 for EU)
	GNSS	Built-in uBlox MAX-M8Q (Max-M8U module is by project based)/w GPS/GLONASS/BeiDou 3 in 1 module
	Antenna	5 x SMA-type antenna holes for GPS, Wi-Fi+Bluetooth MIMO, WWAN/LTE MIMO[4]
Power	Input Voltage	12/24 V vehicle power (6 ~ 32 V_{DC} input) (ISO 7637-2 and SAE J1113 compliant)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (programmable ignition on/off delay) Supports wake-up events: wake on alarm (RTC), wake by call/SMS, wake by G-sensor, and wake by DI (DI0 & DI1) System power protection (low voltage protection for vehicle battery) System monitoring and diagnostics
Mechanical	Dimensions (W x H x D)	Standalone unit: 230 x 72 x 118 mm (9.05 x 2.83 x 4.64 in) With IP54-rated I/O cover: 230 x 72 x 198 mm (9.05 x 2.83 x 7.79 in)
	Weight	Standalone unit: 2.0 kg (4.4 lb) With IP54-rated I/O cover: 2.7 kg (5.95 lb)
Environment	IP Rating	IP30 (optional IP54-rated I/O cover available upon request)
	Vibration/Shock	MIL-STD-810G, EN60721-3-5 (5M3)
	EMC	CE, FCC, CCC
	Safety	UL/cUL, CB
	Vehicle Regulations	E-Mark (E13)
	RF Regulations	CE (R&TTE), FCC ID, PTCRB
	Operating Temperature	-30 ~ 70°C w/o airflow
	Storage Temperature	-40 ~ 80°C
DeviceOn/iService Remote Device Management	Operating System	Windows 10
	Common Controls (Reboot, Shutdown)	✓
	Remote desktop	✓ (VNC)
	Device-Specific Controls (Audio, Backlight)	✓*
	Connection Status	✓
	Hardware Status	✓*
	Hard Disk Status	✓*
	Batch Operation Support	✓
	OTA Storage Management	FTP
	OTA Software Updates	✓
	Software Watchlist	✓
	Software Start/Stop	✓*
*Dependant on device model	Peripherals Watchlist	✓*

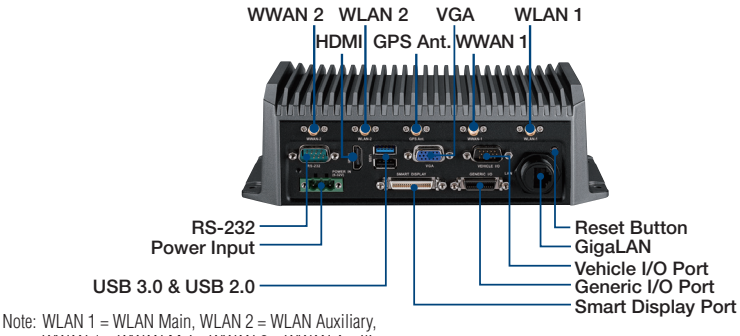
[1] When paired with TREK-303/306 via a single-cable connection
[2] BYT-I can support dual independent displays (smart display + VGA, smart display + HDMI, or VGA + HDMI).
[3] Supports dual independent audio streams. The Line-Out interfaces of the smart display ports and generic I/O are driven by different audio codecs.
[4] The box-side connector is RP-SMA, female (external female thread with male internal pin)

Dimensions

Unit: mm



System I/O



Note: WLAN 1 = WLAN Main, WLAN 2 = WLAN Auxiliary,
WWAN 1 = WWAN Main, WWAN 2 = WWAN Auxiliary

Ordering Information

Part Number	Description
TREK-570-00A1E	TREK-570 FL Intel BYT E3826 barebone unit
TREK-570-LWBXA1E	TREK-570 FL W/LTE (EU)/GPS/WLAN/BT/W10 IoT LTSB
TREK-570-LWBXB1E	TREK-570 FL W/LTE (US)/GPS/WLAN/BT/W10 IoT LTSB

Note: Linux OS image is available upon request

Packing List

Part Number	Description
1700019031	Power cable, 2 m
1700023050-11	Generic I/O cable
1700023051-01	Vehicle I/O cable
1654011716-01	Waterproof RJ45 locking kit
1750007724-01	3-in-1 (LTE/GPS/Wi-Fi) antenna, 3 m
1750007723-01	Wi-Fi antenna, 3 m

* Power cable, Generic I/O cable and Vehicle I/O cable are all included in both full sku units
* Waterproof RJ45 locking kit is included in barebone and full sku units
* 3-in-1 antenna and Wi-Fi antenna are included in both full sku units

Optional Accessories

Part Number	Description
TREK-303R-HA0E	TREK-303 7" WVGA in-vehicle smart display
TREK-306P-HA0E	TREK-306P, 10.4" XVGA PCAP Smart Display
1700020007	M cable SCSI-36P(M)/SCSI-36P(M), 2 m, for TREK-303
1700020008	M cable SCSI-36P(M)/SCSI-36P(M), 5 m, for TREK-303
1700019464	A cable 1*3P-5.08/DC jack+SW, 155 mm, for in-house testing
96PSA-A65W19V1-1	Adaptor 100-240 VAC, 60W, 12 V, 5A, w/o PFC FSP060-DBA, for in-house testing

RF CTOS Kits

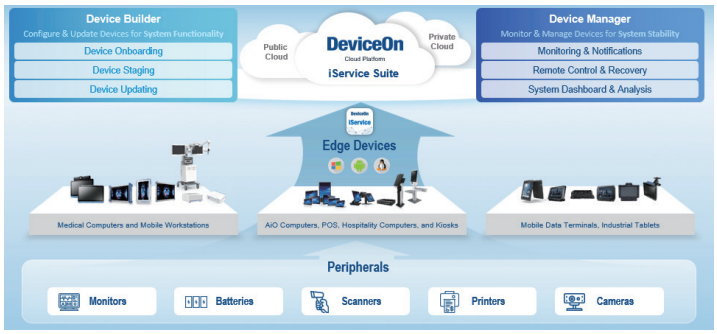
Part Number	Description
98R8T57006E	TREK-570 WLAN kit (802.11a/b/g/n/ac BT combo)
98R8T57007E	TREK-570 LTE module kit for US(WP7610)
98R8T57008E	TREK-570 LTE module kit for EU(WP7607)

*These RF kits are without antenna

Embedded OS

Part Number	Description
20708WX6ES0045	Img WIN10 LTSB-6(Atom) TREK-570 V1.01 7MUI x64

DeviceOn - iService Suite



Introduction

Advantech's DeviceOn - iService Suite is an advanced remote device management solution that enables you to centrally manage your devices, minimizing the need for expensive on-site visits and saving your valuable time and resources. Device Builder ensures that your devices are always up-to-date with the latest configuration and software updates, reducing the risk of data breaches and other security threats. Meanwhile, Device Manager helps to ensure that your devices are functioning correctly, reducing downtime and enhancing productivity.

Key Functions

Device Builder

Device Onboarding

- Support Windows, Linux, Android devices
- Quick enrollment process

Device Staging

- OS configuration
- Software/peripheral watchlist
- Device label, alarm rules

Device Updating

- Cloud software storage
- Installation package for multiple software updating

Device Manager

Monitoring & Notifications

- Connection/hardware status
- Software/peripheral status
- Failure notifications

Remote Control & Recovery

- Reboot & power controls
- Audio & backlight settings
- Screenshots & remote desktop

System Dashboard

- Devices working status
- Software version sync status
- Results of scheduled tasks

Services & Specifications

Functions List	OS Platform			Service Type	
	Windows	Android	Linux (Ubuntu)	Builder	Manager
	10, 11	6, 8, 10	TBD		
Device Onboarding - Enrollment, Locations and Labels	✓	✓		✓	✓
Profile – OS Settings (KIOSK Mode, ON/Off Schedule, others are OS dependent)	✓ (LTSC)	✓		✓	✓
Profile – Alarm Rules, Software Monitoring, Peripheral Monitoring	✓	✓			✓
OTA Update – Installation Packs, Software Cloud Storage	✓	✓		✓	✓
Monitoring – Device Hardware (CPU/RAM/Storage/Battery)	✓	✓			✓
Monitoring – Advanced Battery Management	✓ (Dependant on device model)				✓
Monitoring – Device Software (Running Status/CPU & Memory Usage)	✓	✓			✓
Monitoring – Peripherals & Display (Connect Status)	✓				✓
Control – Audio volume & Backlight	✓	✓			✓
Control – Screenshot, Reboot, Shutdown	✓	✓			✓
Control – Schedule Tasks	✓	✓			✓
Control – Remote Desktop	VNC				✓

Ordering Information

Ordering P/N	Cloud Type	Description
36CSDOISSASP01	SaaS subscription	DeviceOn - iService Suite device annual fee (365 days)
36CSDOISPSRP01	On-premise server	DeviceOn - iService Suite device license (perpetual)
36CSDOISPSRP02	On-premise server	Software and installation fee for new server deployment
36CSDOISPSRP03	On-premise server	Annual maintenance fee after warranty