TREK-688

Premium In-vehicle Computing Box for Surveillance & Fleet Management

Features

- 4th generation Intel® Core™ processor
- Easily paired with TREK in-vehicle smart displays (TREK-303/306) via a single-cable connection
- Embedded Stretch S7 video encoder supports up to 12 analog video inputs and 8 audio inputs
- Dual external HDD/SSD tray with key-lock protection
- Vehicle diagnostic interface with configurable dual CAN (J1939, OBD-II/ISO 15765) and J1708 (J1587) protocols
- Built-in, GNSS, WLAN, Bluetooth, and LTE/WWAN (with dual SIM cards) modules
- Intelligent vehicle power management system for ignition on/off/delay and power protection functions
- Wide operating temperature range (-30° C ~ 55° C), supports 12/24 V vehicle power (ISO 7637-2), and shock and vibration tolerant (MIL-STD-810G and 5M3)

Introduction

TREK-688 is an industrial-grade, dual-core computing box designed to provide high-quality video surveillance and fleet management for eBus and BRT (Bus Rapid Transit). TREK-688 delivers tracking and positioning and also supports dead-reckoning, which allows a truck to be traced even if the driver is in a tunnel. It supports the J1939 protocol for vehicle diagnostics and driver behavior management, and it supports high-quality, MJPEG, H.264 recording, and transmission for up to 12 camera inputs. It has dual Gigabit Ethernet w/M12 connectors and dual display/dual audio interfaces which support different resolutions. Each camera input provides motion detection capabilities; there are 8 audio inputs. The TREK-688 provides reliable on-board recording and can transmit images or alarms for remote monitoring over WLAN, or LTE/WWAN network connection.

Specifications

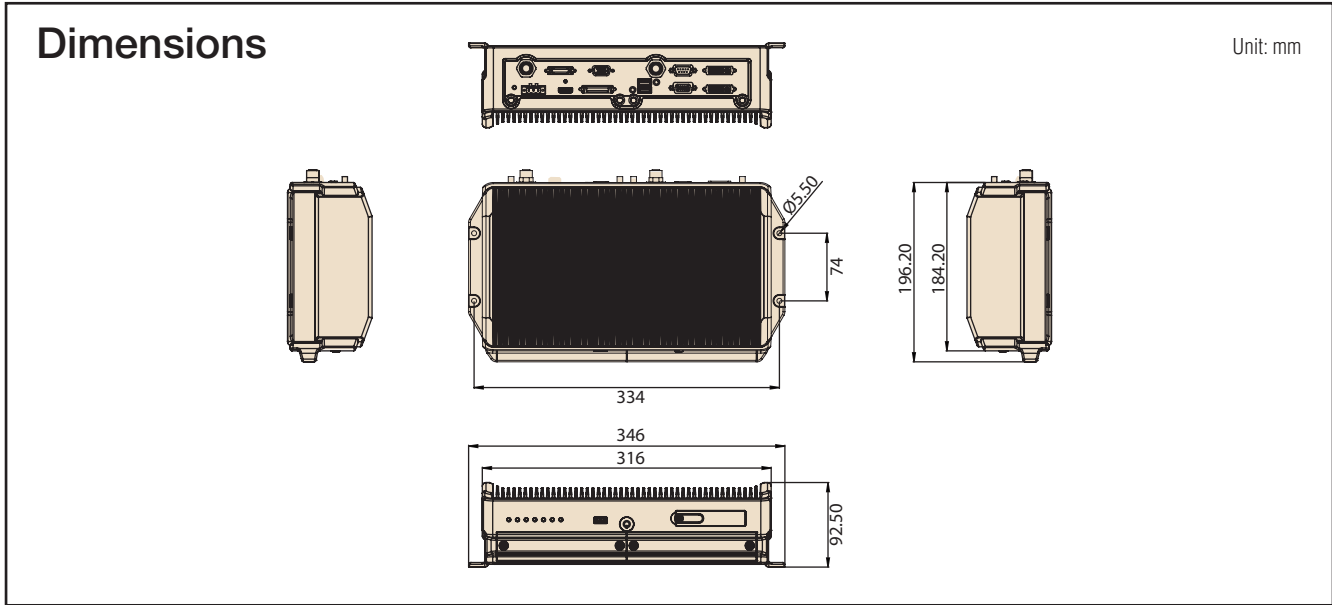|		
Core	Processor	Intel® Core™ i7-4650U Dual Core, 2.9GHz (i3-4010U & i5-4300U by project support)
	Memory	1 x SO-DIMM socket Up to 8GB DDR3L-1600 Non-ECC memory module; (Default configuration: 4GB)
	Graphic	Intel HD graphics 4400 1.1GHz
	Video HW Encoder	Stretch S7, support H.264, MJPEG format; Resolution up to D1, 30fps per channel
	O.S	Windows 7 pro 32bit as default. WES7, WE8S 32bit by project support Linux Fedora 18 Remix (kernel 3.8.0) (32-bit) by project support
Storage	CFast	1 x external accessible CFast slot with cover, support system boot up Default configuration: 16GB, SLC SQFlash Cfast card
	mSATA	1 x mSATA slot, support system boot up Default configuration: N/A; BOM optional, by project-based
	HDD/SSD	2 x external accessible 2.5" Mobile HDD/SSD tray with key-lock protection, support system boot up (Optional) Support SATA Gen2 (3Gb/s)
Display	Smart Display Port (*1)	12V/2A power output for TREK-30x 1 x 18-bits LVDS (Resolution : 800x480 (TREK-303), 1024 x768 (TREK-306); default TREK-306) 1 x Line-Out (*2) (For Speakers on TREK-30x) 2 x UART (TX/RX, TX/RX/RTS) (For T/S, Hot keys, brightness, light sensor control) 1 x USB 2.0 Type A 1 x PWR Button Signal 1 x Reset Button Signal
	HDMI	1 x HDMI 1.3b (Resolution up to 1920 x 1080)
	VGA	1 x DB15 (Resolution up to 2560 x 1600)
I/O	Vehicle I/O Port	2 x CAN Bus (Support Raw CAN, J1939, OBD-II/ISO 15765; FW configurable) 1 x J1708 (Support J1587) 1 x 4-wire RS-232/422/485 (Default RS-485, by software setting)
	Generic I/O Port	2 x 4-wire RS-232 4 x Isolated DI (Dry Contact) 4 x Isolated DO (Open collector output, driving by relay) 1 x Line-Out (*2) 1 x Mic-In
	Standard I/O Port	1 x USB 2.0 Type A (Front side) 2 x USB 3.0 Type A (Rear side, with cable clip) 1 x High Speed Full RS-232, DB-9 (Pin 9 = Ring, 12V/5V @ 0.5A is BOM optional by jumper setting) 2 x Giga LAN, with 8-pin M12 connector
	Video / Audio input (AV1 & AV2, via dual DVI-I connector)	16-ch Video inputs, Video Compression: support H.264, MJPEG format; Resolution up to D1, 30fps per channel, total 480fps. 8-ch mono Audio inputs, Audio Compression: G.711
	LED	6 x LEDs (Power (Red), CFast (Yellow), WLAN (Green) ,WWAN (Green), GPS (Yellow), Network connection (Yellow))
	Power Button	Via TREK-30x (In-Vehicle Smart Display); System is powered on by Ignition in default
	Reset Button	1 x Reset button (Front side)
RF	WLAN + Bluetooth	IEEE 802.11a/b/g/n + Bluetooth 4.0 combo module via Full Mini-PCIe Slot
	WWAN	4G (LTE,HSPA+,GSM/GPRS/EDGE, EV-DO Rev a1, 1xRTT): Sierra Wireless MC73xx via Full Mini-PCIe Slot (Default: MC7354 for US/ MC7304 for EU)
	GNSS	Build-in u-blox MAX-M8W GPS/Glonass/Beidou module, support AGPS
	Antenna	4 x SMA type antenna hole for GPS, WiFI+ BT, WWAN/LTE MIMO. (*3)
Power	Voltage input	Supports 12/24 V car power system. (9V ~ 32V wide DC input, ISO 7637-2 & SAE J1113 compliant.)
	Intelligent Vehicle Power Management (iVPM 2.0)	System power on/off/hibernate management (e.g. Programmable Ignition On/Off Time delay) Support Wake up Events: - Alarm (RTC) Wake up. - Wake up by Call/SMS. - Wake up by G-sensor. System power protection (e.g.Car Battery Low Voltage Protection) System monitoring and diagnostic

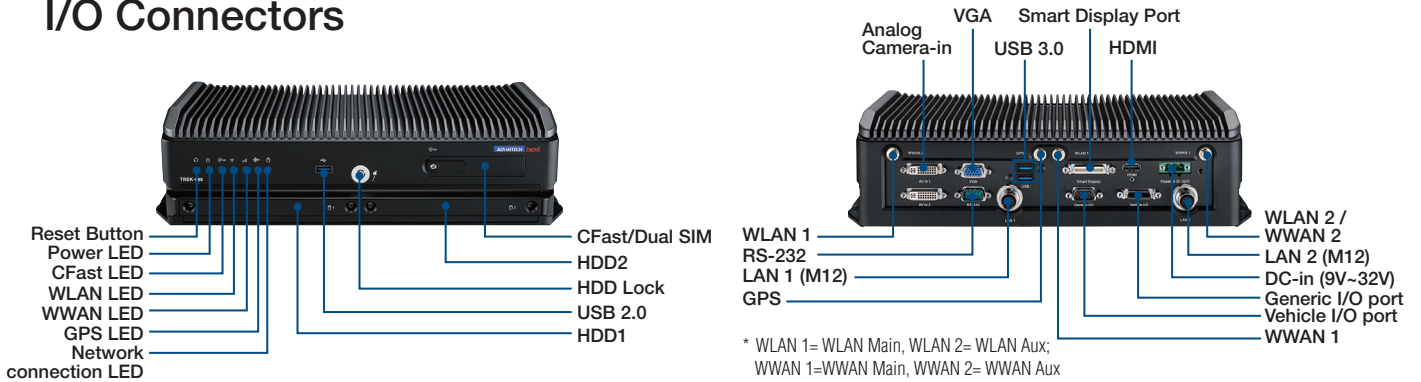| Mechanical | Dimensions (W x H x D) | 346 x 92.5 x 196.2 mm |
	Weight	5.9 kg (with two HDDs)
Environment	IP Rating	IP30
	Vibration/Shock	MIL-STD-810G, EN60721-3(5M3)
	EMC	CE, FCC
	Safety	UL/cUL, CB
	Vehicle Regulation	E-Mark (E13), SAE J1455 class C, ISO 7637-2, SAE J1113, EN50155, IEC 60571
	RF Regulation	CE (R&TTE), FCC ID
	Operating Temperature	-30° C ~ 55° C
	Storage Temperature	-40° C ~ 80° C

*1: To be paired with TREK-303/306 directly. (Single-cable connection)

*2: Support dual independent audio streams. (i.e. The Line-Out interface in "Smart Display Port" and "Generic I/O Port" are driven by different Audio codecs.)

*3: The connector type on box side is Female RP-SMA connector. (i.e. Female connector body (outside threads) with a male inner pin contact.)

Dimensions

Unit: mm

Ø5.50

196.20
184.20
74
334
346
316
92.50

I/O Connectors

Reset Button
Power LED
CFast LED
WLAN LED
WWAN LED
GPS LED
Network connection LED

CFast/Dual SIM
HDD2
HDD Lock
USB 2.0
HDD1

Analog Camera-in
VGA
Smart Display Port
USB 3.0
HDMI

WLAN 1
RS-232
LAN 1 (M12)
GPS

WLAN 2 / WWAN 2
LAN 2 (M12)
DC-in (9V~32V)
Generic I/O port
Vehicle I/O port
WWAN 1

* WLAN 1= WLAN Main, WLAN 2= WLAN Aux;
  WWAN 1=WWAN Main, WWAN 2= WWAN Aux

Ordering Information

Part Number	Description
TREK-688-7LWB7PA0E	i7-4650U/LTE/HSPA+(EU)/GPS/WLAN/BT/Win7Pro 32bit
TREK-688-7LWB7PB0E	i7-4650U/LTE/HSPA+(US)/GPS/WLAN/BT/Win7Pro 32bit

Remark: WES7, WE8S and Linux O.S. image are by project-based.

Optional Accessories

Function	P/N	Description
Smart Display	TREK-303R-HA0E TREK-306D-HA0E	TREK-303, 7" WVGA Smart display TREK-306, 10.4" XVGA Smart display
Smart Display cable 2M	1700020007	M Cable SCSI-36P(M)/SCSI-36P(M) 2M for TREK-303
Smart Display cable 5M	1700020008	M Cable SCSI-36P(M)/SCSI-36P(M) 5M TREK-303
M12 to RJ45 LAN cable (for in house Test)	1700020170-01	M Cable Waterproof 8P/RJ45-8P8C 5CM
Power cable (for in house Test)	1700019464	A Cable 1*3P-5.08/DC Jack+S/W 155mm TREK-753
Adapter (for in house Test)	96PSA-A60W12V1-1	ADAPTER AC 100-240V 60W 12V