

# TREK-550



## Intel® Atom™ In-Vehicle Computing Box

### Features

- Supports Win CE 6.0, WES 2009, XP and Linux (Ubuntu 10.04/2.6.34)
- Automotive grade working temperature range (-30 to 70° C)
- Rich I/O including CAN, LAN, RS-232, RS-485, J1708, 4DI/4DO (isolated), Line out, Mic in, USB, and Video-in
- Built-in communication modules, including GPRS/HSDPA/CDMA, WLAN & Bluetooth
- GPS with AGPS and dead reckoning technology (Gyro & speed line)
- Certifications: CE/FCC/E-mark, MIL-STD-810G, ISO 7637-2, SAE J1455, SAE J1113 regulations
- Dual independent display/audio output for both driver and passenger
- Ignition on/off delay; SW controllable for car power management



## Introduction

The TREK-550 is a dedicated box computer for industrial vehicle fleets, transport trucks, buses and taxis. TREK-550 combined with variety of I/O connectors can be connected to devices like OBD-II or TPMS (Tire Pressure Monitoring Systems). Dual display/dual audio interfaces supporting different resolutions can deliver different applications to different displays; eg: one application to a fleet driver and another to a digital signage application.

Built-in wireless communications (WWAN, WLAN, BT) enable TREK-550 to send important driver/vehicle/location/cargo information back to the control center. TREK-550 can also operate in extreme environments with features like a wide working temperature range (-30 to 70° C). TREK-550 also uses a special design to handle the critical issue of in-vehicle power. Special power protection (ISO7637-2/SAE J1455 Class A/ SAE J1113) and car power management software (Ignition on/off, delay on/off, low battery monitor) prevent electrical noise and surges from impacting the system, guarding against damage from transient car power. TREK-550 also supports a rear view monitor via a video port connection. With this feature, drivers can monitor the environment on both sides of the truck in real-time for driving safety. TREK-550 can also support dead-reckoning, meaning the truck can still be traced even when the driver is driving in a tunnel.

## Specifications

|                   |                        |                                                                                                                                                                                                                                                  |
|-------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System            | CPU                    | Intel Atom XL Z510PT 1.1 GHz (Z520PT 1.3 GHz is optional) (Industrial grade)                                                                                                                                                                     |
|                   | Chipset                | Intel LE82US15EE                                                                                                                                                                                                                                 |
| Physical          | System Memory          | 1 x 200-pin SODIMM socket; Supports up to 2 GB industrial DDR2 400/533 memory module                                                                                                                                                             |
|                   | Dimensions (W x H x D) | 266 x 149 x 69.7 mm                                                                                                                                                                                                                              |
| Storage           | Weight                 | 2 kg                                                                                                                                                                                                                                             |
|                   | Compact Flash          | 1x Type II (externally accessible)                                                                                                                                                                                                               |
| Display interface | Smart Display Port     | Design compatible with TREK-303H, 7" smart display signal includes: <ul style="list-style-type: none"> <li>18-bit LVDS out</li> <li>2 x RS-232 ports</li> <li>Mono audio out</li> <li>1 x USB host</li> <li>12V DC output @ 1A output</li> </ul> |
|                   |                        |                                                                                                                                                                                                                                                  |
| I/O               | CAN                    | 1 x CAN 2.0 A/B (J1939 protocol is ready, 2500Vrms isolation protection) via box header                                                                                                                                                          |
|                   | Video In               | 2 x composite video inputs for rear view monitor; bypass to digital display port; doesn't support video recording (NTSC, PAL, SECAM with automatic format detection)                                                                             |
|                   | USB Host               | 3 x USB host ports type A connectors with cable clip (front I/O panel x1; rear I/O panel x2)                                                                                                                                                     |
|                   | Mic In                 | 1 x Mic-in jack with cable clip                                                                                                                                                                                                                  |
|                   | Line Out               | 1 x line out jack with cable clip                                                                                                                                                                                                                |
|                   | COM Ports              | 2 x full function RS-232 ports, 5 V @ 500 mA, 12 V @ 250 mA, ping9, jumper selected                                                                                                                                                              |
|                   | Isolated DI/DO         | 1 x 4-wire RS-232, 1 x RS485, 1 x J1708                                                                                                                                                                                                          |
|                   | VGA Output             | 4 x isolated dry contact digital inputs via DB9 (2500 Vrms protection)                                                                                                                                                                           |
|                   | LAN                    | 4 x relay drivers via DB9                                                                                                                                                                                                                        |
|                   |                        | 1 x VGA output via DB-15 (independent display)                                                                                                                                                                                                   |
| Communication     | WWAN                   | 1 x 10/100/1000 Ethernet (with LEDs) via RJ-45 with cable clips                                                                                                                                                                                  |
|                   | WLAN                   | GPRS - Cinterion MC55i (option), CDMA - Sierra Wireless 5728V (option) and HSDPA-MC8790V (option), with SMA connector for external antenna                                                                                                       |
|                   | Bluetooth              | Optional, supports 802.11 b/g/n, with SMA connector for external antenna (through internal Mini PCI Express)                                                                                                                                     |
|                   |                        | Optional, supports Bluetooth Class II, Version 2.0 + EDR, antenna built-in                                                                                                                                                                       |
| GPS               | Model                  | ublox industrial grade LEA 5S                                                                                                                                                                                                                    |
|                   | RF Receiver Type       | 50 channels GPS L1 frequency, C/A code                                                                                                                                                                                                           |
|                   | Cold Start             | 29 s                                                                                                                                                                                                                                             |
|                   | Warm Start             | 29 s                                                                                                                                                                                                                                             |
|                   | Hot Start              | <1 s                                                                                                                                                                                                                                             |
|                   | AGPS                   | <5 s                                                                                                                                                                                                                                             |
|                   | Acquisition            | 160 dBm                                                                                                                                                                                                                                          |
| G sensor          | Protocol               | NMEA (Input/Output, ASCII, 0183,2,3 (compatible to 3.0))                                                                                                                                                                                         |
|                   |                        | UBX (u-blox proprietary protocol) (Note: Dead Reckoning optional)                                                                                                                                                                                |
| LED               | LED Indicator          | Built-in                                                                                                                                                                                                                                         |
|                   |                        | <ul style="list-style-type: none"> <li>Power (Red)</li> <li>Storage Access (Green)</li> <li>WLAN data transfer (Green)</li> <li>WWAN link (Green)</li> <li>GPS operation (Blue)</li> </ul>                                                       |

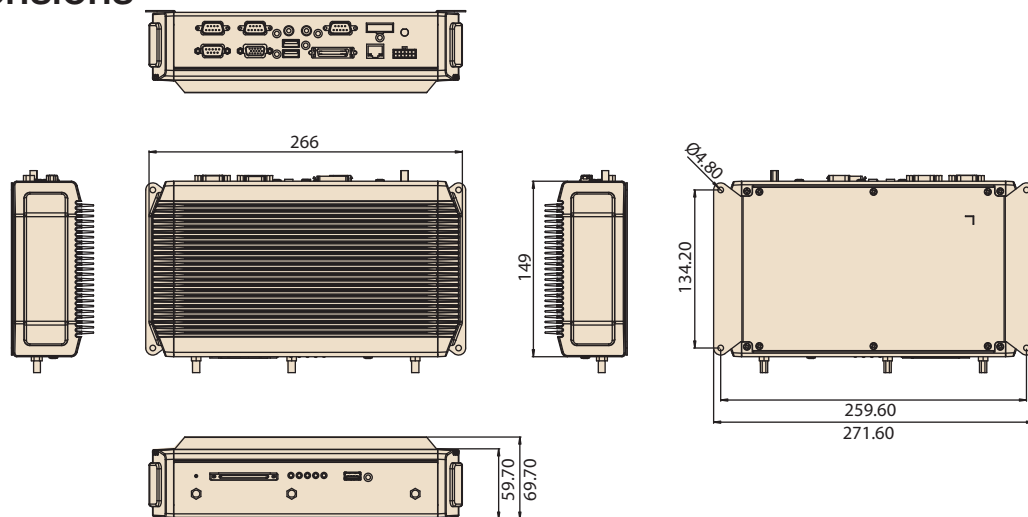
# TREK-550

## Specifications Cont.

|                  |                          |                                                                                                                                                                            |
|------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Car Power Design | DC-input                 | Supports 12/24 V car power system by ISO7637-2 & SAEJ1113 (6V ~ 36V wide DC input)                                                                                         |
|                  | Power Management         | Power on/off delay,<br>▪ Power on delay, 2 sec default<br>▪ Power off delay, 5 sec as default<br>▪ Delay time controllable by SW configuration<br>▪ Low voltage protection |
| Environment      | HW Reset                 | 1 reset button                                                                                                                                                             |
|                  | IP Rating                | IP 31                                                                                                                                                                      |
|                  | Operating Temp.          | -30° C ~ +70° C                                                                                                                                                            |
|                  | Storage Temp.            | -40 °C ~ +85° C                                                                                                                                                            |
|                  | Vibration/Shock          | MIL-STD-810G/ 202A, Method 516.5, EN60721-3 (5M3) compliant                                                                                                                |
| Certifications   | EMC                      | CE, FCC, IC                                                                                                                                                                |
|                  | Safety                   | CE, CB                                                                                                                                                                     |
|                  | Vehicle Power Regulation | E-mark, SAE J1455, SAE J1113, ISO7637-2 level IV compliant                                                                                                                 |
| Mechanical       | Material                 | Top cover (Aluminum extrusion)                                                                                                                                             |
|                  |                          | Side cover (PC)<br>Bottom & I/O cover (metal)                                                                                                                              |

## Dimensions

Unit: mm



## Ordering Information

| Part Number    | Description                                     |
|----------------|-------------------------------------------------|
| TREK-550-00A1E | Intel Atom Z510PT 1.1 GHZ GPRS Barebone         |
| TREK-550-01A1E | Intel Atom Z510PT 1.1 GHZ HSXPA CDMA Barebone   |
| TREK-550-10A1E | Intel Atom Z520PT 1.3 GHZ GPRS Barebone         |
| TREK-550-11A1E | Intel Atom Z520PT 1.3 GHZ HSXPA / CDMA Barebone |
| 9668TREK20E    | Cinterion MC55i 4 Band GPRS Kit                 |
| 9668TREK21E    | Sierra Wireless 5728V CDMA Module Kit           |
| 9668TREK22E    | Sierra Wireless 8790V HSUPA Module Kit          |
| 9668TREK23E    | 802.11 B/G/N Module Kit                         |
| 9668TREK25E    | u-blox LEA-5S GPS Module Kit                    |

(Note: Module kits include RF, antenna and internal cable )

## Packing List

| Description                                    | Part Number    | Quantity |
|------------------------------------------------|----------------|----------|
| TREK-550                                       |                | x1       |
| CAN/Video-in cable (15 cm)                     | 1700018743     | x1       |
| Power cable (1.8 m)                            | 1700018306     | x1       |
| Startup manual CD                              | 2068055000     | x1       |
| Cable clip for Mic in, line out, USB host, LAN | 1990018848T000 | x6       |

## I/O Connectors

