ADAS Data Logging Solution

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ADAS Logging Solution – Overview

ADAS Logging & Analysis Components

ADAS Logging, Visualization and Analysis Software

ADAS Logging Hardware and Sensor / Fusion ECU Hardware

Data Management
ADAS Logging Solution – Sensors and ECUs

Scalability – Sensors and Networks

- Radar (RAW Data, XCP, proprietary)
- LIDAR (IBEO, Quanergy, Velodyne, Hesai...)
- Context/Reference Cameras
- Vehicle Cameras (LVDS-based, RAW Data ...)

- XCP-based Systems
- Analog Sensors (pressure, accelerometer ...)
- GPS / IMU (GeneSys ADMA ...)
- Vehicle Networks (CAN/CAN-FD, Ethernet ...)

Scalability – Sensors and Networks
Logging System Setup Example

**ADAS Logging Solution – Typical System Setup**

- **Std. Eth (gPTP)**
- **Vehicle Network**
- **USB**
- **HSSL2**

**GPS/IMU**
**UTC/TAI Time Support**

**CANape / CANape log**

**LAN/ WLAN**

**Time-synced Logger-Cluster**

**CANape Configuration**

**Mobile UI**

**User Interface**

**Fusion ECU**
**POD**

**Front Radar**
**POD**

**Vehicle Cam**

**VX113X**

**LiDAR**

**4x Context CAM H.264**

**4 x Corner Radar**

**CANape / CANape log**

**Eth Interface**

**CANape / CANape log**

**REC**

**xcp**

**Raw Data**

**Raw Data TAPI Data**

**LiDAR**

**AXIS Camera**

**CAN FD Auto.Eth.**

**VX113X**

**VX113X**

**VX113X**
ADAS Logging Solution – Sensors and ECU interface

Radar: XCP-Data + 1 or 2 x RIF Data (Radar-Raw Data)

Radar

- Core 0
- Core 1
- Core 2
- Infineon / NXP / STM / Renasas / TI
- 4 x 400 Mbit RIF Raw Data
  (optional 8 x 400 Mbit RIF Raw Data)

VX143x POD

- 2.5 Gbit AURORA
- 2 x 2.5 Gbit HSSL2 Cable
- 2 x 1 Gbit Eth.

VX1134/1135

- CANape

Port xxxx: RIF Raw Data
  i.e. 80 MByte/s

Port yyyy: ECU internal Data
  i.e. 40 MByte/s
ADAS Logging Solution – Sensors and ECU interface

**Multi Base Module + Camera Interface**

- Support up to 6 ECU with different interface
- Support up to 4 LVDS Cameras Logging
- Multiple CAN Interfaces + Multiple 10 Gbit / 1 Gbit Ethernet Port
ADAS Logging Solution – Sensors and ECU interface

ADAS Fusion ECU Combined PCIe + IFX Aurora POD Approach

ECU Interfaces:
- uC: DAP2/Aurora
- DAS Concept for Dynamic Addressing
- uP PCIe
- 5 x CAN-FD / 1 x FR A/B
- 1 x 100BaseT1 Auto.Eth.
Context-Cameras

- 4:1 Video Encoder + Audio
  - H.264 Hardware Compression
  - Configured in CANape

- Birds Eye View
- Graphical object overlay

- Image Based Camera Calibration

4x Context CAM H.264 + Micro

CANape / CANape log

CANape Configuration Visualization
ADAS Logging Solution – Sensors and ECUs

Video interface and CANape DHPR for LVDS-based Camera

- 4 Channel Serial Link Device
- Modular concept for easy sensor adaptation
- 10GbE Eth. PC uplink port
- 1GbE Eth. port for simple configuration
ADAS Logging Solution – Software (Visualization)

### Engineering Mode
- **Bird's Eye View & Video with Overlay**
- **GPS map position drawing with Overlays**
- **Calibration Parameters**

### Remote Monitor Mode
- Configurable minimized user interface
- Showing only relevant information like remaining recording time, system status...

#### Features:
- **Simulink Model Viewer**
- **CAN, LIN, FR, Eth. / CCP, XCP Trace**
- **Signal displays**
- **Diagnostic Console**
- **Remote Monitor Mode**
  - **System Status**
  - **Manual Start / Stop**
Distributed Measurement Files As Contiguous Measurement

- One measurement configuration with
  - two or more parallel running recorder
  - split files by trigger, time or size rules

- Independent of parallel or time split recording
  - The entire measurement is loaded identified by ID

Benefit
- Focus on your measurement not on the files in CANape
Automated Data Analysis: DataMining Workflow

Select Function or Simulink.dll or Function.dll

Execute Datamining => Generate Hits

PDF Report
**ADAS Logging Solution – Data Transportation**

### Data Transport

- **Test Vehicle**
  - Take out SSD Storage Bay
  - Copy SSD to HDD

- **Proving Ground Facility**
  - Send HDD Storage Bay
  - Copy HDD in storage center

- **Data Center Location**
  - Send brick Storage Bay to data center
  - Copy over 2 x 10 Gbit

**Storage Server**
For more information about Vector and our products please visit

www.vector.com

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