ESS AUTOMOTIVE PRODUCT PORTFOLIO

ESS’s synergetic Automotive Product Portfolio holistically supports design, development and debugging of High Performing Mission and Safety Critical Automotive Solutions.

MODEL BASED DESIGN TOOLS  SAFETY RTOS  LV 124, LV 148
AUTOMOTIVE ETHERNET  MULTI CORE DEVELOPMENT
MICRO-KERNEL RTOS  TOOLS  SAFETY COMPILER
ISO 26262  ECOSYSTEM  INFOTAINMENT
ADAS  MISRA-C  HYPervisor
QUALIFICATION TOOLKITS  AUTOMOTIVE MIDDLEWARE
AUTOSAR  STATIC CODE ANALYSIS  FUNCTIONAL SAFETY
Debuggers from the Automotive Specialist

• Universal Debug and Trace Support
  • ARM / Cortex-M / ARMv7 / ARMv8
  • Infinion / Tricore / AURIX / ARIX2G / HSM / GTM
  • Power Architecture / Qorivva MPC5XXX / S32RXXX / SPC5XXX
  • Reneases / RH850 / V850 / R-CAR

• AUTOSAR ORTI / OSEK Debug
• Onchip and Off-chip Trace
• Multicore Tracing
• AMP and SMP Debugging
• Debugger for Synopsys Virtualizer
• ISO 26262:2011 Tool Qualification Support-Kit

• Code Coverage
• Vector Integration: Software Debugging via XCP
• QNX 7.0 Aware Debugging Capabilities
• Hypervisor-Awareness Debugging
• Support for the Benchmark Counting Registers of the RH850 Family of microcontrollers
• Test Automation via Scripts & API
• PIL Simulation - Support for Mathworks Simulink

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APPLICATION HIGHLIGHTS

**TRAFFIC GENERATION**
- Bit error rate testing (BERT) for integrity validation
- Latency characterization of automotive devices, components, and applications
- Throughput performance testing
- Functional testing
- Media conversion: BASE-T <-> BASE-T1

**PACKET CAPTURE / PROTOCOL ANALYSIS**
- Layer 1 and Layer 2 visibility with PCS and MAC layer capture (at line rate)
- Layer 1 - Layer 7 protocol filters and triggers
- Latency monitoring of automotive application traffic flows
- Event timing correlation and analysis
- Real-time stats and graphical analysis
- Media conversion: BASE-T <-> BASE-T1

**DELAY / IMPAIRMENT EMULATION**
- Inject delay and impairments inline
- Real-world performance validation
- Negative and functional testing
- Reproduce production environments for more effective troubleshooting
- Media conversion: BASE-T <-> BASE-T1

Aukua is an active member of the OPEN Alliance SIG

Aukua MGA2510
All-In-One Automotive Ethernet Test System

IEEE 100BASE-T1 and 1000BASE-T1

Inline Packet Capture and Protocol Analyzer

Network Impairment Emulator

Traffic Generator and Analyzer

Aukua is an active member of the OPEN Alliance SIG
architecture and static code analysis

**software architecture**
- verification
- modelling
- recovery
- AUTOSAR

**technical debt**
- clone detection and management
- dead code and cycle detection
- include profiler
- metrics (including HIS)

**coding rules**
- MISRA C:2004, C:2012
- MISRA C++:2008
- CERT® rules
- AUTOSAR C++14

**compliance**
- SPICE®
- ISO 25119, ISO 26262, IEC 61508, IEC 62304, DO-178B/C
- FDA, VDI 5702

**DevOps integration**
- UML® tools + XMI
- CI integration
- reporting API
- delta analysis
- web user interfaces
- IDE plugins

Axivionsales@embeddedindia.com
EA BIDIRECTIONAL PROGRAMMABLE DC POWER SUPPLIES
Power Supply and regenerative load in one

19 Inch Slide-in Housing
(Series PSB and PSB 10000)

EA Advantages
- Autoranging
- Power Density
- Battery simulation
- Arbitrary waveform and function generator
- Low EMC
- Output voltage up to 2000V
- High efficiency up to 96%
- Battery and fuel cell test functions

Electric Vehicles Testing Solutions
Battery Management Test Solutions
Testing On Board Chargers & DC Charging Stations

Automotive Test Standards
- LV 123
- ISO 16750-2
- VW 80300

- Integrated function generator provides the ability to create non-linear voltage and current waveforms in both Source & Sink mode.
- VW 80300 requires high voltage transient testing.
- Transients required to be 20V/msec for 450Vdc based hardware and 40V/msec for 900Vdc based hardware.
- Function generator allows users to program customizable transients.
Multi-Core Multi-Architecture

• Automotive Development Platform
  • AURIX 2G TC3xx, AURIX TC2xx and TriCore TC1xx variants
  • STMicroelectronics SPC56x, SPC57x, SPC58x Power Architecture
  • NXP Qorivva MPC56xx, MPC57xx, MPC58xx
  • RH850
  • GTM/MCS (C compiler supports GTM/MCS v3 and v4 core level)

• Advanced Multi-Core C/C++ Compiler with Multi-Architecture Support

• Leading Compiler Optimization Technology

• Industry Shortest (Compile-Link) Build Times

• HSM Compiler and GTM Assembler

• PXROS-HR SIL-3 Certified Micro Kernel RTOS

• Toolkit Qualification ISO26262 ASIL D, IEC 61508 SIL4, EN 50128 SIL4

• AUTOSAR MCAL Driver Support (including sales and on-site training)

• 3rd Party Debugger Support (Lauterbach Trace32)

• Commercial Standard and Math Libraries (no open source, no viral GPL implication)

Hightecsales@embeddedindia.com
CoDriver is an innovative camera-based driver monitoring software solution from Jungo, for the ADAS (Advanced Driver Assistant Systems) market. Based on state-of-the-art deep learning, machine learning and computer vision algorithms, CoDriver provides the car with a complete, real-time picture of the driver’s condition.

CoDriver for Driver Monitoring

By obtaining the valuable information provided by CoDriver, car makers can create safer cars and reduce crashes caused by distracted or drowsy drivers. Furthermore, with the era of the autonomous vehicle around the corner, CoDriver is set to play an instrumental role in helping the industry transition from manual, through semi-autonomous to fully autonomous driving.

CoDriver for Full Cabin Detection

CoDriver for full cabin was designed to bring a new layer of visual information of in-cabin behaviors and activities, leveraging computer vision, machine and deep learning software. CoDriver for Full Cabin enables getting real time information about everything going on inside the vehicle.

CoDriver uses standard IR cameras to provide information such as:

- Number of people in the cabin
- Positions
- Ages/Gender
- ID
- And much more...
THE NEXT GENERATION OF 2-IN-1 HIGH PRECISION POWER MONITORING HARDWARE AND BENCHTOP POWER SUPPLY IS HERE

Eliminate the need to buy a separate power supply and power monitoring device. Save space and test setup cost using the highly scalable solution of Monsoon High Voltage Power Monitor (HVPM).

BRIEF SPECIFICATIONS
- Size: 8 in x 6 in x 2 in (20 cm x 15 cm x 5 cm)
- Weight: 1.1 lb (0.5kg)
- Input power 115V to 240V, 47-63Hz
- Main channel 0.8V to 13.5V range
- USB channel -Up to 13 V supplied externally
- 0.01 V Increments
- Continuous Current 6 A

POWERFUL SOFTWARE
- Full featured Windows GUI-PowerTool.
- Multiple APIs support for Linux, Mac and Windows platforms which allow for fully-automated testing.

PORTABLE MODULAR DESIGN
- Very flexible: Can be deployed individually at a single workstation or scaled up to rack mount style configurations for large scale testing.

HIGH ACCURACY
- Main Channel: Fine Current Range 50µA-60 mA; Resolution 0.9 µA (+/-50µA) in low current measurements
- Coarse Current Range 60mA-6A; Resolution 125 µA

WIDE VOLTAGE AND CURRENT RANGE
- Main Channel: Output Voltage Range 0.8-13.5 V
- USB: Up to 5.5 V
- Aux Channel: Up to 13 V supplied externally

WIDE APPLICATIONS
- Development and testing of Smartphones, Tablets, Software App, Automotive, IoT devices with respect to Battery drain

APPLICATION HIGHLIGHTS

INDUSTRY LEADING CERTIFICATIONS
- UL, FCC and CE certified

AFFORDABLE

WHAT’S INCLUDED?
- High Voltage Power Monitor (HVPM)
- Power supply
- 2 alligator clips
- 2 USB cables
- Information card with links to PowerTool software and support documentation

TYPICAL USE CASES
- Smartphones, Tablets or Laptops
- Smartphone Apps
- Internet of Things (IoT) Devices, Medical Devices
- USB Devices
- Automotive Sub-circuits
- Prototype Designs
- Power measurement of Arduinos, Raspberry Pi and Microcontrollers
- Burn in testing

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EDGE COMPUTING

NVIDIA Jetson AGX Xavier

NVIDIA JETSON AGX XAVIER
The AI Platform for Autonomous Machines

TRANSFORMING INDUSTRIES WITH AI

Connect Tech

Get your autonomous vehicle application on the road with an integrated NVIDIA Jetson AGX Xavier and GMSL solution

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Dashboard

Complex test cases are often hard to understand if you only look at the signals. The TPT dashboard allows intuitive visualization of complex states and data. The tester can also interactively change, validate, and record tests. Its usage is extremely simple.

Testing AUTOSAR

TPT simplifies AUTOSAR application software component testing. Test setup is lean and easy with automatic test RTE generation. All common kinds of AUTOSAR interfaces, ports, data types, scheduling can be tested with TPT on every PC.

Assessment of tests and reporting

TPT supports fully automated assessment & documentation of test results. It is a really powerful feature of TPT that supports all kinds of assessments, from very simple to highly complex ones.

Requirements based testing

In TPT, requirements can be linked to test cases and reported along with the tests, including coverage analysis. Seamless traceability and impact analysis assist the tester during the whole development life cycle.

Vehicle testing

During vehicle test drives, TPT assists the driver with automated driving instructions, permanent monitoring of test goals, parameter application, and data recording. With TPT, vehicle testing becomes easy, effective and reproducible.

Testing C code

C code can be tested using TPT on every Windows PC. TPT can handle many C modules in parallel. It automatically analyses your C code interfaces, creates function & variable stubs, generates a test harness and much more.

HiL testing

Use TPT for HiL test automation independently of your HiL vendor. TPT supports many HiL systems off-the-shelf, including dSPACE HiL, ETAS LABCAR, Concurrent iHawk, Vector CANoe, NI Verisimtand, and all ASAM XIL HiL systems.

Pil testing

TPT has a close integration with TRACE32 (Lauterbach) and UDE (PLS). Automated fine grained control of the underlying debugger allows access to all software variables and functions as well as control flow manipulation.

Testing Simulink models

Testing Simulink or TargetLink models with TPT is very easy and powerful. No matter if MIL or Sil. No matter if 2 or 2000 signals. No matter if unit or integration model. No matter if busses, triggered subsystems, model referencing, AUTOSAR, ... TPT masters them all.

Testing safety systems

Safety standard directives can be satisfied while testing with TPT up to the highest safety level. Relevant standards, such as ISO26262, are supported. The TPT tool qualification is certified by TÜV.

TPT test design and test generation

TPT was made for testing signal-oriented systems. Test case design with TPT is powerful, easy to handle and easy to maintain. Additionally, TPT comes with smart automatic test generation tools.

Testing ASCET models

PT supports fully automated ASCET model testing for both, physical models and implementation models. Automatic test harness generation for module and integration testing with many features allows very efficient tests, even for large-scale control software.

EMBEDDED SYSTEMS SOLUTIONS

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**FOUNDATIONAL SOFTWARE SOLUTIONS FOR THE MODERN VEHICLE**

**ADAS AND ACTIVE SAFETY**
BlackBerry QNX offers ISO 26262 certified OS and frameworks that power advanced driver assistance systems (ADAS) modules and enable automated driving.

**Products**
- QNX Platform for ADAS
- QNX OS for Safety

**INSTRUMENT CLUSTERS**
BlackBerry QNX offers a reliable, functionally safe, solution for digital instrument clusters.

**Products**
- QNX Platform for Instrument Clusters
- QNX OS for Safety

**INFOTAINMENT**
BlackBerry QNX offers market-leading technologies for the development of connected and secure infotainment systems.

**Products**
- QNX CAR Platform for Infotainment

**DIGITAL COCKPIT**
BlackBerry QNX enables digital cockpits that integrate multiple in-car systems while separating safety-critical systems from non-safety critical systems.

**Products**
- QNX Hypervisor
- QNX Platform for CAR Infotainment

BlackBerry QNX eases the challenges of building ISO 26262 compliant automotive systems through its solutions

**BLACKBERRY QNX FUNCTIONAL SAFETY SOLUTIONS**

- **OPERATING SYSTEM**
  - Provides a reliable RTOS foundation that is pre-certified to the highest level of ISO 26262 - ASIL D

- **VEHICLE INSTRUMENT CLUSTERS**
  - Delivers an ISO 26262 ASIL B pre-certified graphics solution

- **ADVANCED DRIVER ASSISTANCE**
  - Provides a foundation on which to build safe and reliable autonomous driving software

- **HYPERVISOR**
  - Isolates safety-critical systems from non-safety critical systems

- **SYSTEM SAFETY DETECTION**
  - A fault tolerant technique to address hardware and software errors in safety critical systems

BlackBerry QNX’s safety solutions mitigate risk of non-compliance and reduce development and certification costs.

QNX offers safety-certified and secure software solutions to build automotive subsystems and ECUs.

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TOELLNER offers flexible solutions for on-board network simulation and testing of components, e.g. for the automotive and avionics industries. The Software WaveControl provides waveforms and controls the TOELLNER system components at the test station, which can be individually tailored to your requirements. Using a DAQ-Card, any signal waveform can be provided with Arbitrary Power Supplies or 4-Quadrant Amplifiers with outputs from 160 W to 5200 W. For fast interruptions, TOELLNER offers electronic switches with switching times below 500 ns.

WaveControl Software includes a comprehensive library of waveforms supporting these standardized automotive industry tests:

- LV 124, LV 148
- VDA 320
- VW 80000-1
- VW 82148
- GMW 3172
- MBN 10615
- ISO 16750-2
- BMW GS 95024-2-1
- BMW GS 95026

- Import & Export of recorded Data
- Visual Generation of individual Waveforms
- Sequence Controlling and Timing

- Electronic Switch for short interruptions up to 60V / 100A; tr / tf < 500 ns
- 4-Quadrant-Power-Supply up to ± 100 V / ± 40A; > 100 kHz, 320W / 1kW, modularly expandable up to 6.4 kW / 20 kW
- Arbitrary Power Supply up to 100 V / 320 A, AC-superimposition up to 70 kHz, 320 W / 1 kW up to 5.2 kW / 16 kW
- Software to create arbitrary waveforms, an extensive library of normative waveforms included
- All instruments can also be used individually

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Leading provider of hardware, software, and services for automotive and industrial communication with emphasis on the fieldbuses CAN & LIN.

Hardware

• Can FD Connections for High-speed USB 2.0, PCI Express, PCI Express Mini, and M.2
• Can/LIN interfaces for conventional PC Interfaces and Embedded Applications
• I/O mModules with CAN Connection for Control, Measured Data Recording, and Processing
• Converters for Different Physical Transmission Types (bus converter modules)
• Routers and Gateways for the forwarding of messages between CAN buses and other Networks
• Data Loggers and Diagnostic Hardware
• Products for Education, Demonstrations, & Test Setups
• Chip Solutions for the CAN and CAN FD Connection to USB and PCI Express

Software

• CAN Development Systems for Windows 10, 8.1, 7, CE 6.x and for Linux
• Programming Interfaces for Various Protocols and Standards
• Software to Monitor and Diagnose CAN and LIN Buses
• Programs for Recording, Playback, and Simulation of Message Traffic
• Configuration Software for CAN Hardware from PEAK-System

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