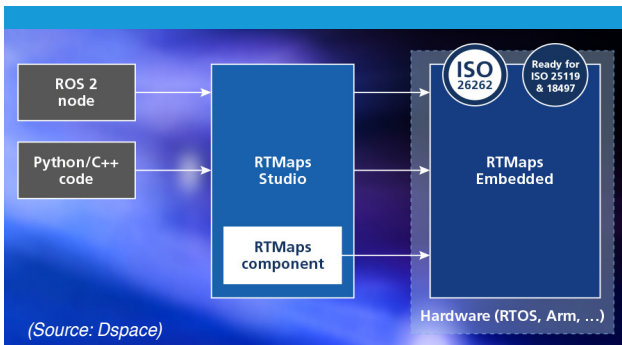




News in this regular column came in, close to the editorial deadline. Nevertheless, they have been doublechecked on accuracy and correctness.



Development tool for agricultural robotics

Start-ups in agricultural robotics face some challenges during software development: real-time constraints, multi-sensor synchronization, limited computing resources, and compliance with functional safety standards such as ISO 18497 and ISO 25119, the agricultural equivalent of ISO 26262 for automotive. RTMaps, the multi-sensor software framework for data logging and replay, software development, and real-time execution, is designed to tackle these hurdles: It accelerates time-to-market through faster debugging and simplified integration cycles, while reducing development costs.

To support start-ups even further, Dspace has launched the RTMaps Startup Accelerator. The program provides access to RTMaps Developer Studio for intuitive drag-and-drop development of real-time multi-sensor applications, and RTMaps Embedded for deployment on embedded computing systems. It supports CAN connectivity including higher-layers such as Isobus (ISO 11783 series) and integrates seamlessly with ROS 2 (robot operating system) software environments. *hz*

AI-development tools

Nissan Technical Centre Europe (NTCE) and Sonatus (U.S.A.) have announced a partnership, developing AI (artificial intelligence) tools. These tools provide CAN connectivity, in order to harvest data from in-vehicle networks. NTCE engineers in Cranfield (UK) will use

Software tool for CAN XL access



Peak-Sytem Technik, a company of HMS Networks, has revealed the PCAN-Explorer 7 for analyzing, monitoring, and simulating CAN, CAN FD, and CAN XL networks. It includes all proven PCAN-Explorer 6 core functions and adds CAN XL support for faster bit rates (up to 20 Mbit/s) and higher payloads (up to 2048 bytes). Users can assign multiple description data bases per connection such as symbol files or CANdb files, which makes it easier to work with several data bases in parallel avoiding manual merging effort. The addition of Python scripting brings an up-to-date automation environment to the platform used in automotive testing applications. Another improvement is the introduction of a licensing system based on CodeMeter. Customers can choose between single-user or floating licenses. In addition, USB license dongles are available to make single-user licenses portable. For users who want to test the software, trial licenses are available.

Further functionality is the fine-grade trace playback, allowing users to step through trace files message by message, pause automatically on defined breakpoints, and create controlled test and replay scenarios. PCAN-Explorer 7 also introduces support for J1939 FD, enabling engineers who work with heavy-duty and off-highway applications to analyze and simulate next-generation protocol variants. Another enhancement is the highlighting of data changes in the receive list. This makes it easier to spot dynamic values, detect anomalies, and follow changing signals in real time.

PCAN-Explorer has long been known as a Windows software tool for CAN and CAN FD networks. It enables simultaneous access to multiple CAN channels to observe, analyze, and log communication in complex network environments. A central element is the symbolic representation of messages, which transforms “raw” CAN data into readable and meaningful signal information using symbol files. The tool enables both manual and periodic transmission of messages, making it suitable for testing, network trouble shooting, and system development. *of*

the Sonatus Collector AI and the Sonatus AI Technician tools to analyze real-time and historical vehicle data. Evaluating data from sensors, electronic control units (ECUs), and onboard diagnostics tools, these tools automatically detect irregularities, potential failures, and operational inefficiencies based on AI-based algorithms. *hz*

Round-table discussions

CiA exhibits at the Embedded World trade show in Nuremberg (Germany). This time, CiA schedules round-table discussions on the CiA booth (hall 1, stand 203) for its members and interested non-members. The technical topics include CAN FD and CANopen FD, CAN XL ecosystem, embedded AI and CAN as well as functional safety and cybersecurity. Additionally, one round-table discussion addresses CiA joint marketing opportunities for CiA members.

The topic embedded AI (artificial intelligence) is new for CiA: There are CAN-connectable sensors like cameras and radars, which implement AI algorithms (e.g., machine learning and deep learning). This applies also for condition-monitoring sensors. There are also edge AI controllers on the market, which feature CAN connectivity. In the related round-table discussions, especially, the need for additional CiA specifications will be evaluated. *hz*

Testing embedded-AI algorithms

Vector (Germany) has launched the CANoe4AI software tool, which can test and analyze embedded-AI software. The tool supports data- and scenario-driven testing and can be integrated into existing development environments such as CI/CT (continuous integration/continuous testing) workflows. This enables improving software quality and detect errors at an early stage. In combination with the CANoe tool, the user gets a test environment from a single source for evaluating entire systems including CAN networks and I/O (input/output) channels. Currently, the software tool is in the pre-release phase; the supplier is looking for pilot customers. *hz*

Ring coupler for CAN-FD networks

The DL CAN-FD ring coupler from EKS Engel (Germany) enables redundant coupling of CAN CC and CAN FD segments via a fiber-optic connection. It supports the arbitration bit rates from 10 kbit/s to 1 Mbit/s and CAN FD data bit rates up to 8 Mbit/s. The configuration is performed via an integrated 0,96-inch OLED display with a control button. To increase operational reliability, the device is equipped with two power inputs for redundant power supply. A fault relay, the display, and status LEDs (power, data reception, status/error, fiber view) indicate the operation state and the errors occurred. The device is based on the Bosch M_CAN module with the TCAN3414 transceiver from Texas Instruments. For data connection a 6-pin terminal block is used. The operating voltage can range from 12 V_{DC} to 30 V_{DC}. The ring coupler with a stainless-steel housing dimensions 60 mm × 120 mm × 110 mm and weights 500 g. *of*



Humanoid robot goes into mass production

Tesla (U.S.A.) plans to produce its Optimus robot (3rd generation) in high volumes by end of this year. The AI-powered (artificial intelligence) humanoid robot platform uses embedded CAN-based networks. The factory in Fremont (California) will be converted into an Optimus production facility; it was before used to manufacture Tesla's Model S and X passenger cars. Elon Musk said that in long term, the factory will have a capacity to produce about one million robots per year. *hz*

Bluetooth SoC with CAN FD connectivity

Shenzhen Goodix (China) has launched the GR5410 system-on-chip (SoC) featuring a Bluetooth 6.1 interface and an on-chip CAN FD port. The chip is intended for hands-free vehicle-door operations.



(Source: Goodix)

It features a channel-sounding unit and is powered by an Arm China's Star-MC1 core. The SoC supports secure boot, protected debugging, encrypted storage, and a "one-chip-one-key" hardware security module (HSM) mechanism providing comprehensive protection for intelligent cockpit and digital car key systems.

All Bluetooth nodes can complete synchronized ranging in approximately 200 ms, enhancing ranging refresh rates and accuracy. Combined with Goodix's proprietary AI-based ranging algorithms, the solution achieves accuracies of up to ±50 cm with a maximum ranging distance exceeding 50 m. The Bluetooth protocol stack is compatible with RSSI (received signal strength indicator) broadcast scanning, RSSI monitoring, and channel-sounding ranging.

According to the Chinese supplier, the chip has already been selected for projects by some automakers and Tier-1 suppliers. It is scheduled to enter pilot production in the first quarter of 2026. The SoC comes with SPI2CAN driver software supporting the TCAN4550 by Texas Instruments via the on-chip SPI (serial peripheral interface). The driver software enables different pre-defined bit rates with pre-defined sample points. It also supports a listen-only mode. The TCAN4550 system-base chip (SBC) implements a CAN FD protocol controller and a CAN FD transceiver in a single chip. *hz*

CiA workshop on LEVs

One day after the Embedded World trade show on March 13, CiA has scheduled a workshop to negotiate the development of CAN-based device profile specifications for light-electric vehicles (LEV). This includes, in particular, products for so-called pedelecs and e-bikes. Another topic is the harmonization of CAN-based diagnostic, enabling the usage of common manufacturer-independent tools in workshops. "Especially, pedelecs OEMs (original equipment manufacturers) are addressed," explained Holger Zeltwanger, CiA Managing Director. "A standardized CANopen-based diagnostic interface would simplify maintenance and repair." *hz*



CAN in Automation

The nonprofit CiA organization promotes CAN. CiA and its members shape the future of CAN-based networking, by developing and maintaining specifications and recommendations for CAN CC (classic), CAN FD, and CAN XL.

Join the community!

- ▶ Access to all CiA specifications, already in work draft status
- ▶ Get CANopen vendor-IDs free-of-charge
- ▶ Develop partnerships with other CiA members
- ▶ Participate in plugfests and workshops
- ▶ Initiate and influence CiA specifications
- ▶ Get credits on CiA training and education events
- ▶ Get credits on CiA publications
- ▶ Get the CANopen CC (classic) conformance test tool
- ▶ Participate in joint marketing activities
- ▶ Get credits on CiA testing services

*For more details please contact CiA
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www.can-cia.org