CAN *Newsletter Online*

WHAT A NICE EVENT!

30-years CiA birthday celebration

On the two first days of the summer 2022, the "crème de la crème" of the CAN community has met in a nice location in Nuremberg in the midst of the City park.

After a long period of online meetings only, it was possible again: Meet old friends, (re)-establish relationships, or just see and talk to people to whom you usually write emails. About 60 participants from 36 member companies and nine colleagues from CiA joined the event. The event was an excellent opportunity to meet CAN fellows with different expertise and backgrounds. Besides the official program, there was sufficient time for individual talks. According to participants, refreshing of personal networks and establishment of new relations was the most important topic of the two-day event.

Day one – focus on new technologies

On June 1, after the official part including technical presentations and the annual CiA General Assembly, CiA fellows relaxed at the sunny weather in a get-together with dinner and drinks. To talk and laugh with the people gave a feeling of having party with old friends.

Presentations were given in a dimmed room of the event location (Source: CAN in Automation)

Holger Zeltwanger gave a look-back to the CiA beginnings (Source: CAN in Automation)

Dr. Arthur Mutter presented advantages of CAN XL (Source: CAN in Automation)

Holger Zeltwanger has started the day with a look-back to the CiA beginnings. On the first meeting in January 1992, 23 companies discussed compatibility issues of first CAN products. In those days, there was no standardized transceiver and higher-layer protocol available for CAN. At the end of the meeting, Zeltwanger was charged to prepare the foundation of CAN in Automation association, which was done on March 5, 1992. The date of the anniversary event was chosen, because on June 1, 1992, CiA has had its first General Assembly. On the same day, the first issue of the CAN Newsletter has been published. Since the CiA establishment with 14 member companies, the CiA membership increased to more than 730. CiA has released more than 25 000 pages of specifications and recommendations. There were published more than 120 issues of the CAN Newsletter magazine, and CiA organized 17 international CAN Conferences (iCC). Zeltwanger thanks to all the individuals, who have supported the development of the CiA group.

The first presentation session focused on recent CAN lower-layer developments CAN XL, CAN SIC XL, and CAN FD Light. Comparing features of the three CAN generations, Dr. Arthur Mutter (Bosch) gave an insight into the improvements achieved with the development of CAN XL. He pointed out that it has only been possible under the independent umbrella of the CiA association. Additional fields were introduced in the CAN XL frame providing a maximal payload of up to 2048 bit. Now, it is possible to separate the concerns of the frame. For example, the priority and the CAN-Identifier are addressed by their own fields. The introduced SDT (service data unit type) feature, enables to run several CAN-based network-layer protocols on the same bus. Another novelty in CAN XL is the VCID (virtual CAN network ID), which allows to logically separate the CAN network into several virtual networks. The impressive improvement of achievable bit rates was shown in a graphics comparing the three CAN generations. A CAN SIC XL (signal improvement capability) transceiver can be used to achieve bit rates of 10 Mbit/s and higher.

Magnus Hell (Infineon) showed the different physical layer options going through the history of CAN transceivers. "Up to a certain bit-rate, it is possible to use CAN high-speed transceivers in CAN FD, and also CAN XL networks", stated Hell. Afterwards, Matthias Muth (NXP) compared the capabilities of the CAN SIC and CAN SIC XL transceivers regarding possible bit-rates and topology-dictated limits. In the fast phase, CAN SIC XL transceivers transmit the differential signal centered around 0 V, which allows to unambiguously sample the signal for 10 Mbit/s and more. This technology is similar to the one used in Flexray, but eliminates the disadvantages of the latter. The three experts are sure that CAN users are really good prepared for the future with CAN SIC XL transceivers as it provides more freedom for different topologies.

In the next presentation, Fred Rennig (STMicroelectronics) gave an insight into CAN FD Light. The development was advanced by the automotive light industry, but industrial applications can profit from the simplified CAN FD data link layer as well. For use in tomorrow cars, it is intended to monolithically integrate the whole light application in one ECU (electronic control unit). This would allow for a simplified implementation in future zonal car networks. The solution offers cost savings especially for industries deploying it in large piece numbers.

The tables were full ... (Source: CAN in Automation)

Christian Schlegel (CS Consulting) and Uwe Koppe (Microcontrol) talked in the second session about the development and future of classic CANopen and CANopen FD. In a comedian-star-quality, Mr. Koppe took the publicum on a round trip showing the new CANopen FD advantages. His interpretation of the movie "The fast and the furious" was packed with funny cinema citations and pictures. While presentation, the attendees were puzzled by a riddle showing two identically-looking engines. No one could see the difference between them. Solution: The "ISO and non-ISO" conformity of the CAN FD implementation. Absolutely fulfilling its intention, the presentation awaked the listeners from the after-lunch sleep.

On the General Assembly, Uwe Koppe, Christian Schlegel, and Holger Zeltwanger were re-elected as CiA Technical Director, CiA Business Director, and CiA Managing Director, respectively. Together, they group the CiA board of directors for 2022. Additionally, members of the CiA Technical Committee (TC) and the CiA Business Committee (BC) were elected. The permanent members of the TC are Bosch, Emotas, Emsa, ESD, and NXP. Emotas, Emsa, ESD, HMS, and Vector were elected as permanent members of the BC.

Day two – applications and specifications

The second day comprised application-oriented presentations and insights to CiA specification developments. Sebastian Karrer working with W&H Dentaltechnik (Austria) reported about CANopen networks connecting tools in dentist chairs. Bjørnar Wilsrød from Kongsberg Maritime, the "cable man", talked about CANopen usage in vessels and ships, where long networks are needed.

The fourth session was provided by CiA employees. Yao Yao gave an overview on CiA technical groups. Thilo Schumann informed about the UML (unified modeling language) usage in CiA documents, and Reiner Zitzmann talked about the generic CAN bootloader specification.

In the afternoon, the SIG CAN XL and the SIG CAN FD Light have had their regular meetings. In parallel, the newly-elected CiA Business Committee had its first meeting discussing the CiA activity plan for 2023.

Feedback regarding CiA work

Besides the official program, there was plenty of time for personal networking (Source: CAN in Automation)

Besides the official program, there was plenty of time for personal networking. In the breaks and on the first day's get-together, several long-term CiA member companies answered questions regarding CiA membership benefits, CiA services, and the future of CAN. The complete interview will be available in a separate article. As the most important membership advantages were named: To work on and get CiA specifications, receiving first-hand information about new developments, as well as the possibility to shape the CAN future on a company-independent platform. Talking about CiA publications, the experts answered that due to lack of time, the most read news are the CMN (CiA Member News) and CIM (CAN Info Mail) as they contain a compact overview on recent CiA activities. The CAN Newsletter magazine is also an interesting medium to get deeper technology insights. The most interviewed persons are happy with the available CiA services and look very optimistic into the future of CAN.

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