

EMBEDDED WORLD 2020

CANopen FD starter kit

Emotas Embedded Communication has announced its CANopen FD starter kit based on a wide-spread micro-controller hardware and its own CANopen FD slave stack. The company is part of the Embedded World in hall 4, stand 117.



(Source: Emotas)

Emotas' CANopen FD slave stack.

The stack itself is provided as binary, but the application and the object dictionary can be modified to check out all CANopen FD features. To connect the evaluation board to a PC, an Ixat USB-to-CANFD compact is included in the starter kit. The Emotas CANopen Deviceexplorer – a PC tool available for Windows, MacOS, and Linux – is included as well and serves both as CAN analyzer and CANopen FD master tool.

The CANopen FD slave library supports the following CANopen FD features:

- NMT Slave
- USDO server with simultaneous connections (expedited unicast and broadcast, segmented unicast)
- PDO Producer and PDO consumer
- SYNC Consumer
- Heartbeat Producer
- 1 Heartbeat Consumer
- Emergency Producer

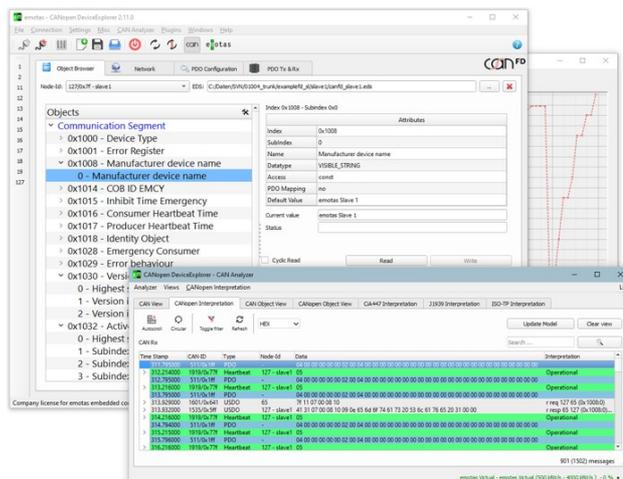
The example application simulates a digital/analog I/O device, with a few real but mostly simulated values (Photo 2). Some data objects, exceeding the length of 54 bytes, are included to show the USDO segmented transfer as well. Additionally, the object dictionary of the CANopen FD slave application may be modified using the company's CANopen Devicedesigner. In order to limit the usage for evaluation only, the CANopen FD binary library will stop running after an hour. The bit-rate pair set to 500 kbit/s nominal bit rate and 2 Mbit/s data bit rate and the node-ID can be configured by the application. So if one has multiple boards, one may set up multiple CANopen FD slave devices with different node-IDs.

The evaluation version of the CANopen Deviceexplorer works with a fixed bit rate pair of 500 kbit/s and 2 Mbit/s. USDO access, PDO configuration, and NMT commands are limited to the node-IDs 32 and 64. In addition to that, all CANopen FD master features of the tool can be used and the integrated CAN analyzer interprets the CAN FD messages according to the CANopen FD specifications.

Although the ready-to-use starter kit is available for sale, all software components will be available for download on the company's website after the Embedded World 2020 fair end of February and a detailed bill of material will be published as well. So anybody who has already some of the hardware components does not need to purchase everything but can start directly with their hardware. By this decision, Emotas encourages developers to start with CANopen FD immediately, said the company.

Engineers who would like to evaluate the possibilities of CANopen FD face the problem that there are currently only a few CANopen FD devices on the market. Additionally, not everybody has the budget to buy a comprehensive set of CANopen FD devices, tools, and CAN FD interfaces just for evaluation purpose. To overcome these limitations and to offer engineers a solution, the company has released its CANopen FD starter kit based on a wide-spread micro-controller hardware and its own CANopen FD slave stack.

The starter kit consists of an STM32 Nucleo-64 board which comes with a STM32G4 micro-controller with an included CAN FD controller. On top of the Nucleo-64 board an own board will be used which comes with an CAN FD transceiver and a DSUB-9 connector. Alternatively, an RS485-CAN-Shield by Waveshare can be used. Although its CAN transceiver is only qualified for 1 Mbit/s, tests have shown that it works up to 4 Mbit/s in lab conditions. Inside the STM32G4 runs evaluation version of



The example application simulates a digital/analog I/O device, with a few real but mostly simulated values ; Some data objects, exceeding the length of 54 bytes, are included to show the USDO segmented transfer as well. (Source: Emotas)

