

Atmel ARM BSP with CANopen library

Major objective of the presented activity was to develop reusable software components for ARM Cortex-M7 based microcontrollers from Microchip. This goal has been achieved with development of the following software components for SAMV71 microcontroller.

- **Bootloader conforming to the SAVOIR requirements**

Low-level Bootloader developed in compliance with SAVOIR requirements. This implementation is also based on the ASN.1/ACN modelling used for the PUS-C standard deployment with asn1scc compiler. Implementation of the following services has been provided:

- ST[01] request verification
- ST[05] event reporting
- ST[06] memory management
- ST[08] function management
- ST[17] test.

- **Board Support Package (BSP) for the selected I/O modules**

Dedicated Board Support Package (BSP) that provides software drivers for the major microcontroller peripherals. This component is used by the Bootloader and CANopen demonstration application developed for the RTEMS environment. Among others GMAC driver has been integrated with RTEMS 5 TCP/IP stack and successful communication has been achieved with SVF during test campaign.

- **CANopen protocol software library**

CANopen library compliant with the ECSS-E-ST-50-15C:

- clause 9 (Minimal implementation of the CANopen protocol for highly asymmetrical control applications),
- clause 7 (Time distribution),
- 8 (Redundancy management).

Library was successfully used for demonstrating communication between SVF and SoC running demo code based on the latest RTEMS 5 operating system.