Technical Note

Infineon AURIX TC3xx: DAP over CAN (DXCPL) Configuration

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This Technical Note describes how to use DAP over CAN Physical Layer (DXCPL) with TC3xx microcontrollers.

Tool requirements:
- ✓ winIDEA 9.21.81 or newer
- ✓ BlueBox iC5700
- ✓ DAP over CAN Physical Layer (DXCPL) Converter, Infineon DAP/DAPE Active Probe or 10-pin 1.27mm Infineon DAP2 Wide Debug Adapter

DXCPL is mainly intended for usage in environments where physical access to the debug connector is not available but access to the CAN connector is possible, e.g., an ECU, which is already packed in a housing.

The DXCPL protocol uses SPD (Single Pin DAP) for the transport of data.

Target system requirements

- CAN1 (P14.0 and P14.1) or CAN0 (P33.12 and P33.13) pins have to be connected to the CAN connector.
- External CAN transceiver
- TRST pin is **low** at the time of the PORST pin release. Note that the debug tool doesn't have access to the PORST pin.
- Correct mode of operation is ensured in the UCB_DBG_*.DMU_HF_PROCONDBG.TIC bitfield.
- DXCPL is **not** disabled via your application by setting the SYSCON.DATM bit.

DXCPL is not intended to be used on live systems since it forces all non-DXCPL capable nodes into a disabled state.

The bit STSTAT.SPDEN can be checked via your application to check if DXCPL is active and possibly ignore any CAN related errors or alarms.

winIDEA Configuration

1. Configure a new workspace via *File / Workspace / New Workspace*.
2. Select **DXCPL** as *Debug channel Mode* in *Hardware / CPU Options / SoC*.

Connecting to the device at power-on

This is the recommended way to gain debug access to the device. It is mandatory to use when either:
- In winIDEA *CPU Options / SoC*, a Debug password is used.
- The MCU does not have a valid code programmed.

This mode of operation is only available when CAN1 is reserved for DXCPL. With the alternative pin set, this mode is not possible.

Procedure

1. With the target device not powered, click *Debug / Reset*. winIDEA will go to the debug status **SoC ATTACHING**.

2. Apply power to the device.

3.The MCU will enter the debug status **STOP** and the debug code can be debugged.

Connecting to the already powered device

In this mode of operation, you can use winIDEA as you normally would, but with certain restrictions:
- Debug right after Power On Reset is not possible.
- The MCU needs to have a valid code programmed.
- In winIDEA *CPU Options / SoC*, the Debug password should not be used.