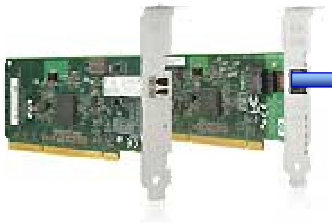
CAN Software
Spy & Echo Example
(Interrupt Handling)

AT90CAN32/64/128

Demo. program

Spy:

All frames of the CAN bus (echo frames included) are sent on the RS232 serial links of the DVK90CAN1 board (UART_0 & UART_1). «HyperTerminal» Windows can display them.



Other node(s)

Terminal

"Spy"

"Echo"

DVK90CAN1

"can_it_spy_echo_example"

CAN bus

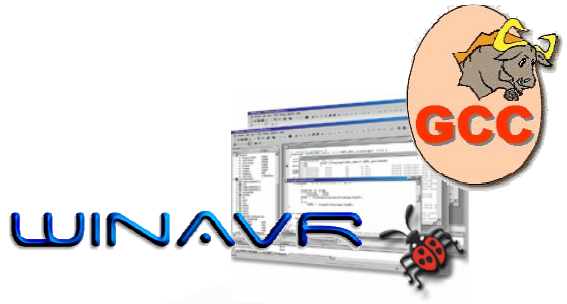
Echo:

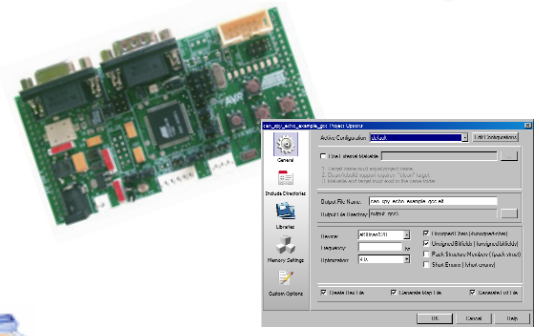
Each frame of the CAN bus (echo frames excepted) is re-sent with the following protocol:
- $ID_{echo} = ID_{received} + 1$
- 8-byte data frame
- 2 last bytes = CAN-STAMP register

CAN node simulation

Demo. environment

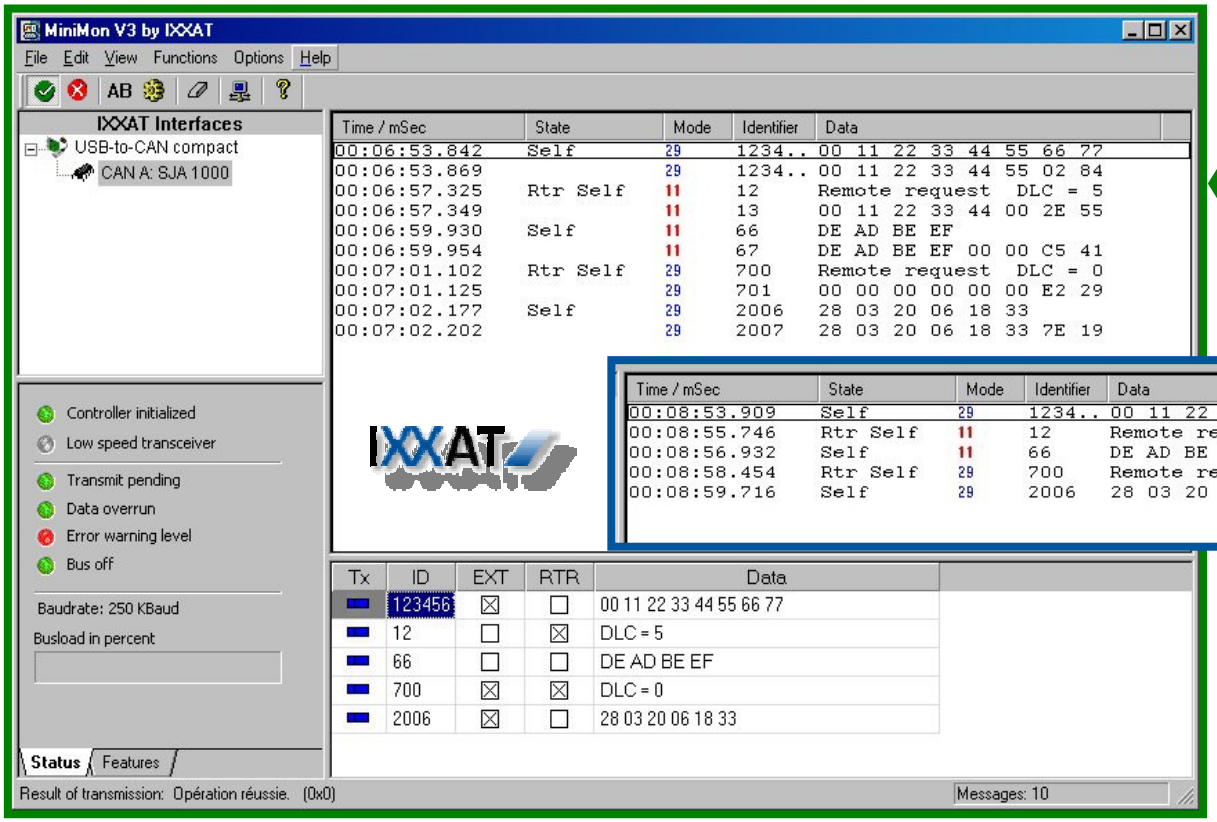
- **IDE**:
  - **AVR Studio 4.13.528 (or higher)**
  - **AVRGCC plug-in**
  - **CAN plug-in**
- **C Compiler:**
  - **WinAVR-20070525**
- **Default target:**
  - **DVK90CAN1 Atmel development board**
- **Configuration:**
  - **Software**:
    Described in «***config.h***» in main root
  - **Hardware**:
    Described in «***..\libraries\lib_board\dvk90can_board.h***» (called by «***config.h***»)
  - **Default setting:**
    - Microcontroller: **AT90CAN128** at **8** MHz (**external crystal** - **no internal RC**)
    - Both **UART_0** & **_1** available - baudrate: **38400** bds (8-bit, no parity, 1 stop-bit)
    - CAN bitrate: **automatic detection** (both CAN 2.0A & 2.0B)
    - Both Spy & Echo modes available





"CAN Rx & Tx" screen shot example

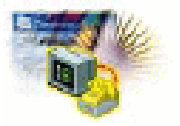
- If no key is pushed during RESET ➔ Spy & Echo mode
- If some key is pushed during RESET ➔ Spy-only mode
- CAN ID = 0 simulates a CAN Error



Spy & Echo mode

Spy-only mode

"Spy" screen shot example



Spy & Echo mode

CAN_spy - HyperTerminal

File Edit View Call Transfer Help

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-O- ======= CAN SPY ECHO EXAMPLE ======= -O-

 ,----------------------------------,
 | AT90CANxx Library Version 3.30   / (R)
 '----------------------------------'

-O ======= Echo + UART in CAN ANALYZER ======= O-

-O- RxCAN @ 0284: 0x12345678(Ext.), L=8, 00-11-22-33-44-55-66-77
-O- TxCAN @ 2678: 0x12345679(Ext.), L=8, 00-11-22-33-44-55-02-84
-O- RxCAN @ 2E55:       0x012(Std.), L=5, Remote
-O- TxCAN @ 4DAA:       0x013(Std.), L=8, 00-11-22-33-44-00-2E-55
-O- RxCAN @ C541:       0x066(Std.), L=4, DE-AD-BE-EF
-O- TxCAN @ E50B:       0x067(Std.), L=8, DE-AD-BE-EF-00-00-C5-41
-O- RxCAN @ E229: 0x00000700(Ext.), L=0, Remote
-O- TxCAN @ 00F4: 0x00000701(Ext.), L=8, 00-00-00-00-00-00-E2-29
-O- RxCAN @ 7E19: 0x00002006(Ext.), L=6, 28-03-20-06-18-33
-O- TxCAN @ A00D: 0x00002007(Ext.), L=8, 28-03-20-06-18-33-7E-19
```

Connected 0:01:12 | Auto detect | 38400 8-N-2 | SCROLL | CAPS | NUM | Capture | Print echo

CAN_spy - HyperTerminal

File Edit View Call Transfer Help

```
-O- ======= CAN SPY ECHO EXAMPLE ======= -O-

 ,----------------------------------,
 | AT90CANxx Library Version 3.30   / (R)
 '----------------------------------'

-O ======= UART in CAN ANALYZER ======= O-

-O- RxCAN @ 0285: 0x12345678(Ext.), L=8, 00-11-22-33-44-55-66-77
-O- RxCAN @ 97D7:       0x012(Std.), L=5, Remote
-O- RxCAN @ C88F:       0x066(Std.), L=4, DE-AD-BE-EF
-O- RxCAN @ B922: 0x00000700(Ext.), L=0, Remote
-O- RxCAN @ 4E95: 0x00002006(Ext.), L=6, 28-03-20-06-18-33
```

Connected 0:01:43 | Auto detect | 38400 8-N-2 | SCROLL | CAPS | NUM | Capture | Print echo

Spy-only mode

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