



# J1939 Protocol Stack

## SAE J1939 Support for esd CAN Boards and SoC with CAN support

### Features:

- All SAE J1939 communication mechanisms supported (except bridge function)
- Full support for the transport protocols ('TP-BAM'/'TP-CM') to transmit larger blocks of data
- Quick software development due to convenient functions: e.g. sending PGN data automatically, callback functions for incoming requests
- Automatic handling of address claiming procedures by callback functions: all 4 address configuration types are possible
- Pre-filtering of messages according to PGN and source address
- Parallel communication with several ECUs
- Support of cyclic transmission of PGN data

- Support for multiple physical CAN ports
- Support for multiple logical devices on the same physical CAN port
- Source code license available  
Easy adaptation to other target systems due to modular structure of the J1939 protocol with well defined abstraction layers  
Written in ANSI-C  
For big/little endian systems, CPU independent  
Many settings can be adapted to the requirements of the application and the available hardware resources by simple configuration files at compile time.

### Requirements:

#### Object License:

- Hardware: esd CAN module supporting 29-bit CAN-ID (NTCAN-API compatible), e.g.  
CAN-USB/2  
CAN-PCIe/200  
CAN-PCI/405  
CPCI-405
- Operating System:  
Windows, Linux, other operating systems like QNX or Vx-Works on request.

#### Source Code License:

- Hardware: Embedded CPU with CAN controller and timer
- CAN implementation: own, or as additional service by esd for 16 bit and 32 bit controllers (e.g. NXP LPC2292 or Fujitsu MB90543)

### J1939 Starter Kit:

- USB CAN-Controller (esd CAN USB/2) with driver license
- J1939 Stack object license (library) with examples
- CANreal monitor and simulation tool w/ J1939 plug-in
- J1939 DSM (Device Simulation and Monitor) program
- Example source code

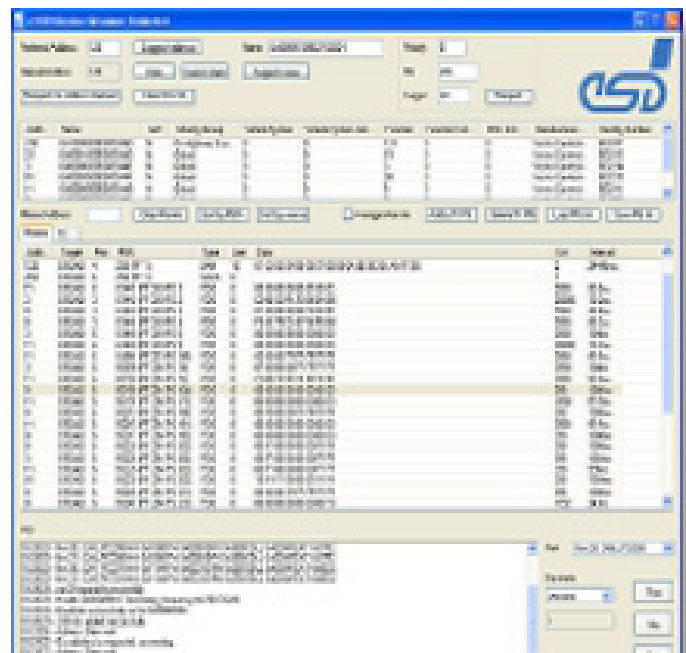


Figure: Screenshot of J1939 DSM (Device Simulation and Monitor) program.

For further information please visit  
<http://www.esd-electronics-usa.com/SAE-J1939-Software.html>

growing with the  
challenge

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## SAE J1939 Support for esd CAN Boards and SoC with CAN support

### Tools:

#### CANreal Monitor and Simulation Tool (for Windows and esd CAN hardware only)

- Display and recording of CAN message frames with high-resolution time stamps
- Protocol interpreter e.g. for J1939
- Supports message ID filtering
- Multiple instances of the software on the same or on different channels can run at the same time
- Supports transmission of user defined CAN message frames

#### J1939 DSM (Device Simulation and Monitor) Program

- Simulates a J1939 ECU
- Multiple instances of the software on the same or on different channels can run at the same time
- Monitors complete PGN traffic on the bus
- Tx messages can be set up for cyclic transmission or for transmission on request only
- Manual transmission of PGN possible
- Manual sending of requests
- Log shows all user interaction and anomalies in the J1939 protocol parsing
- Supported operating system: Windows, Linux (as GTK+ application)



Figure: Screenshot of J1939 DSM (Device Simulation and Monitor) program.

### Order Information:

| Designation  |   | Order no. |
|--|---|-----------|
| J1939 Stack for Windows (object code, runtime license) | J1939 Stack for Windows for esd CAN hardware as Win32 library, incl. CANreal, J1939 plug in, J1939 DSM, esd CAN Windows driver license, example source code | C.1130.10 |
| J1939 Stack for Linux (object code, runtime license)   | J1939 Stack for Linux for esd CAN hardware as shared library (32/64 bit), incl. J1939 DSM (32/64 bit), esd CAN Linux driver license, example source code    | C.1130.11 |
| J1939 Stack (source code, project license)             | J1939 Stack for microcontrollers (SoC with CAN support)   | C.1130.15 |
| J1939 Starter Kit                                      | CAN-USB/2 interface module, complete wiring for two CAN nodes, incl. J1939 Stack for Windows (order No. C.1130.10)  | C.1130.09 |

