J1939 Benchmarks

J1939 Software

The J1939 protocol stack was designed to meet the demanding needs of the high speed Controller Area Network (CAN).

The J1939 source code uses a high performance modular design and has a simple API. It is written entirely in the C programming language and can be used on any platform with a 8/16/32/64 bit microcontroller, either with or without an operating system.

Benchmarks have shown the stack to be **700%** more efficient than other commercially available solutions.

Features

The J1939 source code allows for all of the standard usages of J1939 including:

- Sending and receiving of messages
- Message timeout monitoring
- Message filtering
- Request message processing
- Diagnostic message processing
- BAM and CM transport protocol processing
- Static and arbitrary address claim

Texas Instruments' MCUs

Benchmark	LM36x	TMS570x	TMS320F283x
CPU Clock	80MHz	160 MHz	150 Mhz
CPU Load	1.2%	1.5%	1.7%
ISR Latency	2.0 us	1.9 us	2.0 us
Bandwidth	20.8 MB/s	16.7 MB/s	14.7 MB/s
RAM Size	0.3 KB	0.3 KB	0.3 KB
Code Size	3.7 KB	4.6 KB	5.0 KB

Benchmarks

These benchmarks are for the combined packages of ssJ1939-Full and ssCAN. They were measured with a 100% utilized 250 Kbps J1939 network. CAN identifiers were randomized and acceptance masks disabled. All builds were compiled with full optimizations enabled and code execution from flash.

Simma Software, Inc. specializes in real-time embedded software for the automotive industry.

Products and services include protocol stacks, bootloaders, device drivers, training, and consultation on the following technologies:

J1939, CAN, J1587, J1708, J2497, J1922, ISO 15765, CANopen, UDS, XCP, LIN.

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