SAINT-2 Serial Bus Interface Tool

Overview

Aptiv Proprietary

http://sdt52.usinkok.northamerica.delphiauto.net/wiki/index.php/SAINT2

SAINT-2/3

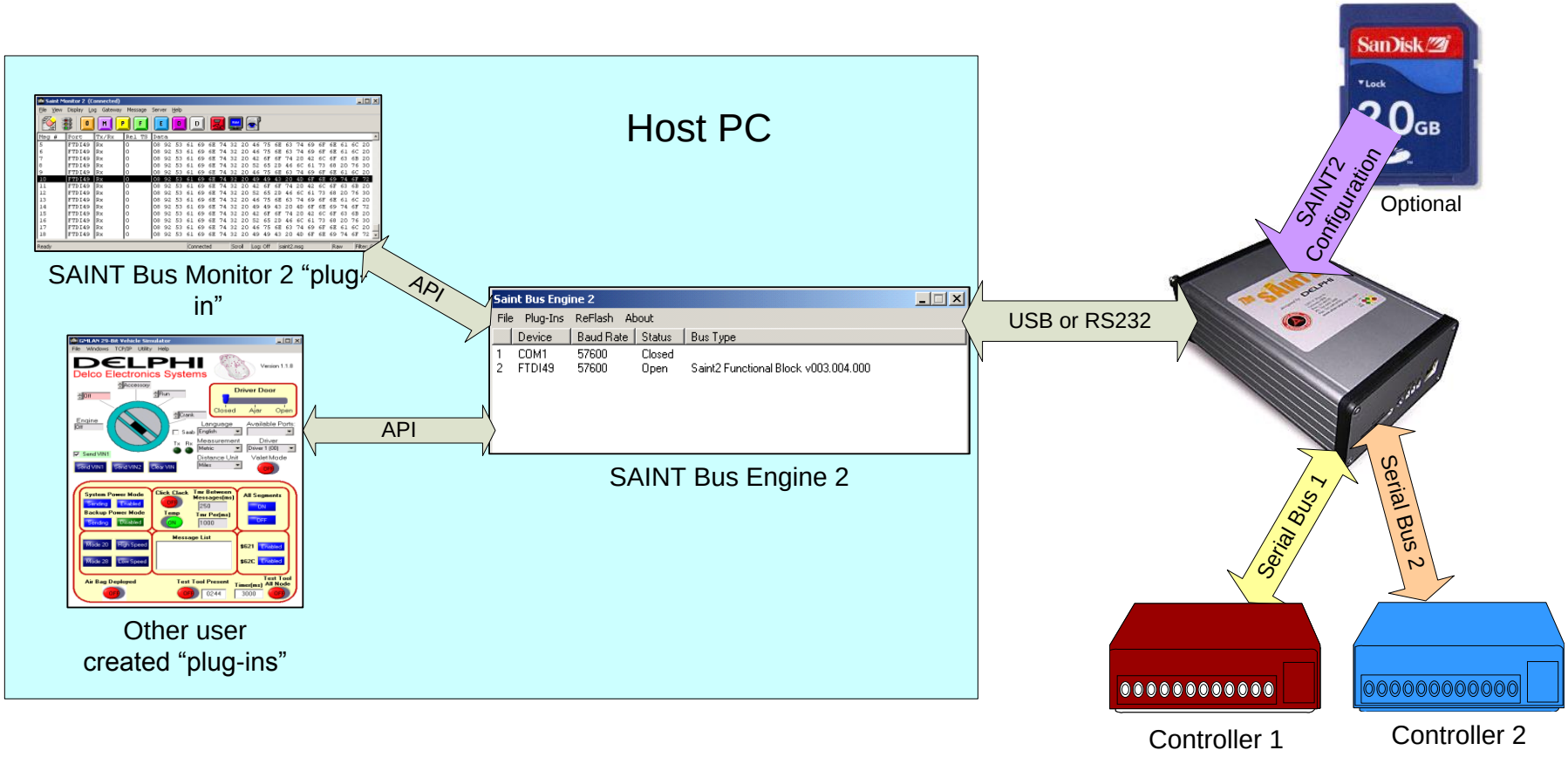
Serial Bus Interface Tool

Stand-alone Re-flash Tool

http://sdt52.usinkok.northamerica.delphiauto.net/wiki/index.php/SAINT2

Serial Bus Interface Tool – System Diagram

Purpose: To provide an interface to a serial bus for a user, a test application, or another controller



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Serial Bus Interface Tool – General Features

- User can interface with multiple buses concurrently with a single tool
- Host interface is USB or RS232
- The SAINT2/3 hardware is host and SD card configurable
- The SAINT2/3 can be configured to send out periodic messages without a PC interface
- The SAINT2/3 can be configured to act as a “gateway” between certain serial buses without a PC interface
- The host can interface with discrete trigger out and trigger in pins

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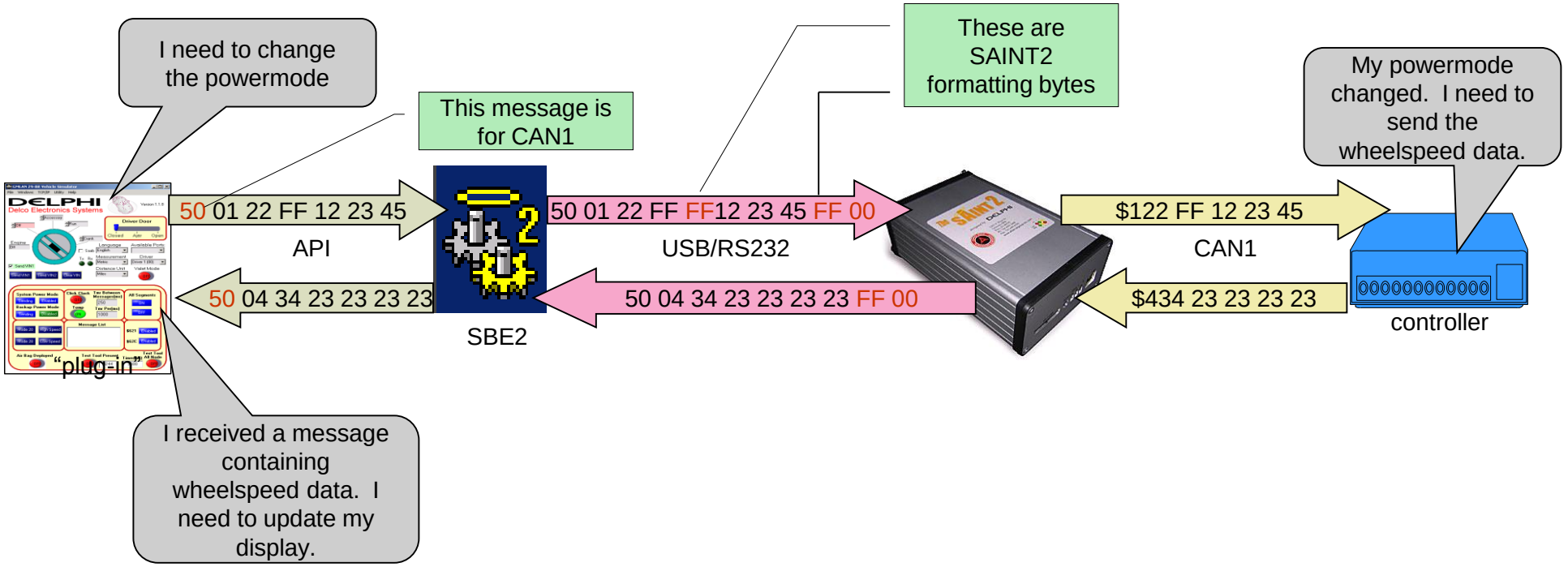
Serial Bus Interface Tool – Host Software

- SAINT Bus Engine 2 (SBE2)
  - Provides the API for user interface or test application “plug-ins”
  - Is solely a pass-thru for serial messages – the smarts are in the “plug-ins”
  - Interfaces with the COM port or USB drivers
  - Provides the interface to re-flash the SAINT2 firmware over USB
- “Plug-in”
  - Is a user interface or test application for the SAINT2 System
  - Multiple “plug-ins” can be used at the same time
  - Some general use “plug-ins” are being developed by the SAINT2 Team
  - “Plug-ins” can be developed for custom applications by the user
    - » Templates are available on the SAINT2/3 website for Visual C++, C# and Visual Basic “plug-ins”
  - Many user created “plug-ins” are available on the SAINT2/3 website
    - » Note – Contact the author of the “plug-in” for help. The SAINT2 team does not support the user created “plug-ins”



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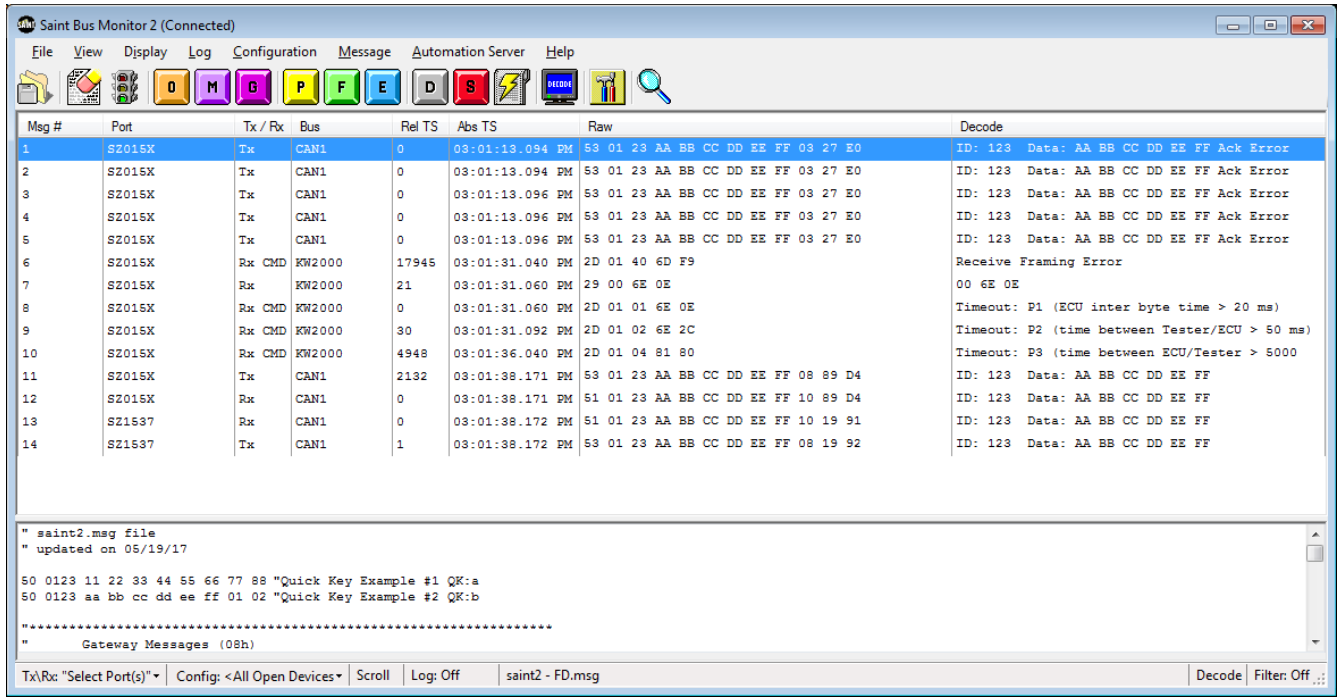
Serial Bus Interface Tool – SAINT “plug-ins”

- SAINT2 Bus Monitor 2 (SBM2)
  - Displays serial bus messages in streaming list format
  - Allows user to send and receive serial bus messages
  - Provides message logging, filtering, emulation, scripting, etc…



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Serial Bus Interface Tool – Protocols

- CAN
  - Transmits and receives CAN on two independent nodes
  - Each node can be configured to support HS CAN, SW CAN, Fault tolerant CAN with applicable baud rates up to 500K baud
  - CAN errors are identified and reported
  - A listen only mode is supported (no ACK, no active error frames)
  - Ack error retries may be limited
- CANFD
  - Saint3 only
- KW2000
- IIC
- LIN
- SPI (monitor only)

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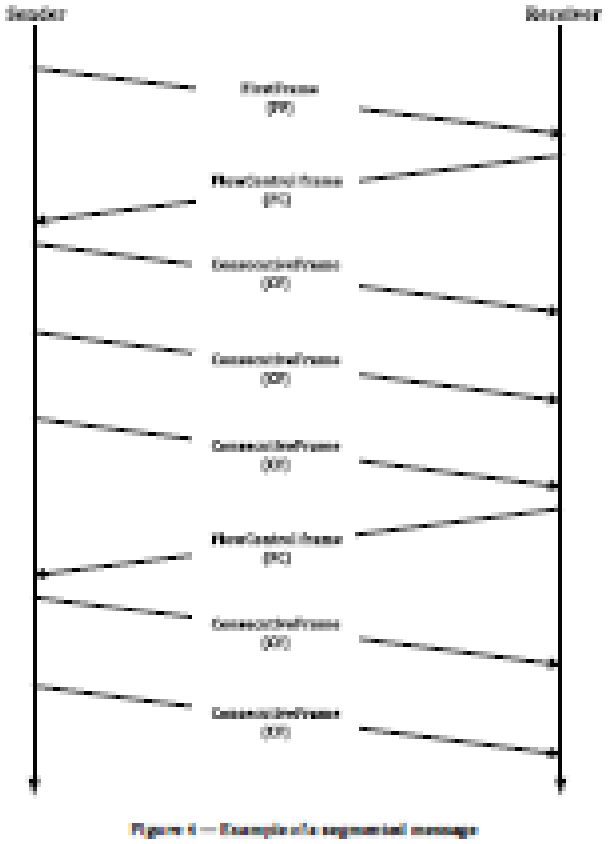
ISO 15765-2

- ISO 15765-2 (Network Layer)
  - First Frame
  - Flow Control
  - Consecutive Frames
  - CAN
    - » 4k-1 message bytes
  - CANFD
    - » 4 GB-1, 2^32 -1 message bytes
  - Transparent to User
    - » Message block treated as regular message
    - » 8 data byte CAN message
    - » 64 byte CANFD message



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Saint 3

- Saint 3
- 2 Versions
  - Adds CANFD
  - Saint 3 Pro
    - » Saint2 with addition of CANFD
    - » Pin Compatible
      - Same Harness
  - Saint 3 Micro
    - » CAN and CANFD only
    - » Similar to Intrepid ValueCAN
    - » No SD card
    - » No Stand-alone capability
    - » Cost Effective
    - » Same DB9 as Vector tools

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Standalone Re-flash Tool – System Diagram

Purpose: Execute a process to re-flash software into a controller over the serial bus without using a PC.

Re-flash Set Up

- PC → SD card using an SD card reader
  - » Application, Calibration, or Routine files in binary format
  - » Re-flash instructions – “SCRIPT.TXT” – tells the SAINT2 how to reflash your specific controller

Re-flash

- Insert SD card into SAINT2
- Connect to power/serial bus
- SAINT2 LEDs indicate status and pass/fail result

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Standalone Re-flash Tool – General Features

- No PC interface is required during the re-flash procedure
- The SAINT2/3 is powered through the ALDL cable from vehicle battery
- The SD card contains all the software and instructions for the re-flash
- Supports certain download strategies for many OEMs
- The LEDs on the SAINT2 display the re-flash status and result
- A summary file containing VIN numbers, the re-flash result and other custom information is updated on the SD card during every re-flash event
- Automates diagnostic features to allow conditional re-flash or re-flash verification

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Reference

- http://sdt52.usinkok.northamerica.delphiauto.net/wiki/index.php/SAINT2:Documentation

- http://sdt52.usinkok.northamerica.delphiauto.net/saint-tools/files/download/saint2/Documentation/SAINT_Programmers_Ref.pdf