Sital Technology CAN bus Safe and Secure (SnS) Test/Demo
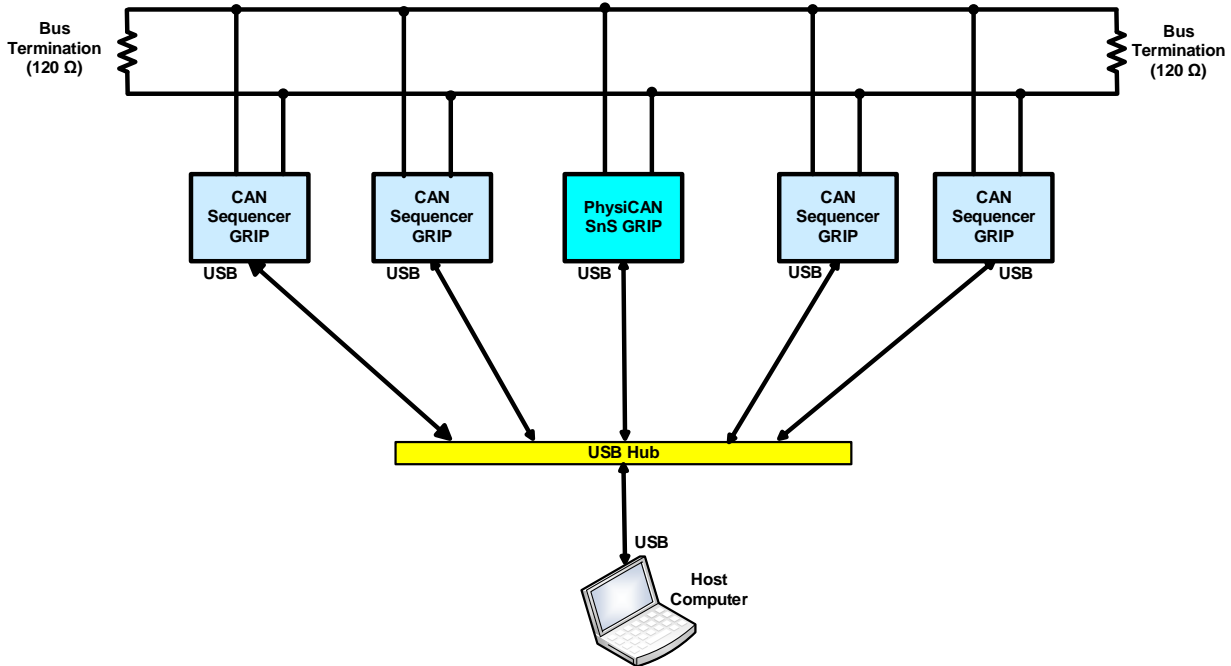

Figure 1. Test/Demo Block Diagram

Figure 1 is the interconnection diagram for Sital Technology's proposed configuration of its Safe and Secure (SnS) CAN bus test/demonstration.

As shown, this configuration will include a total of five (5) Sital CAN bus evaluation boards. All five of these evaluation boards will be able to transmit CAN bus messages according to a defined schedule and also receive messages.

Four of the boards will be Sital's CAN Sequencer GRIP boards. These are able to transmit and receive CAN bus frames. The fifth board will be will Sital's PhysiCAN SnS GRIP, which will incorporate Sital's patented Safe and Secure (SnS) technology. This board, which is the center node in Figure 1, will function as a CAN Bus Defender. This board will include capability to perform continuous enhanced physical layer monitoring.

Based on this enhanced monitoring, this board will be able to detect cyber authentication violations such as being able to detect impersonation or "spoofing" nodes on the CAN bus. In addition, this board will be able to detect and locate electrical wiring faults, including 1-wire or 2-wire open circuits, shorts between CAN_H, CAN_L and/or ground, and missing termination resistors.

All boards will come with Windows API/library/driver software. In addition, the PhysiCAN SnS GRIP board will also come with a simple application example in the form of a Windows GUI (Graphical User Interface) program.

A test and demonstration of Sital's SnS technology based on this configuration could include the following tests:

1. Impersonation or "spoofing" would involve one node on the bus transmitting messages containing a Message_ID that is normally transmitted by a different node on the bus. Sital's PhysiCAN SnS GRIP bus evaluation board will be able to detect such authentication (or "spoofing") violations. This test will be able to be repeated varying different pairs of "spoofing" and "spoofed" nodes on the bus.

2. The other part of the test and demonstration will involve creating electrical wiring faults on the physical bus. These faults will include 1-wire or 2-wire open circuits, shorts between CAN_H, CAN_L and/or ground, and missing termination resistors. These faults will be inserted at various locations along the bus. For each test, Sital's PhysiCAN SnS GRIP board will be able to detect, identify and determine the approximate locations of the various electrical fault conditions.