Sync Status Message Trunk Management Software

Key Features

- Manages the Synchronization Status Messages for an entire system
- Controls the timing device(s) for system (i.e. PLL)
- Uses algorithms for controlling timing per GR-253 for SONET/T1
- Uses algorithms for controlling timing per ETSI 300-417-6-1 and G.781
- Designed to operate in multi-processor environment
- Accepts SSM messages from existing interfaces: T1, E1, E3, SONET/SDH, and Sync-E (G.8264)
- Pre-integrated to NComm's other TMS products
- Determines the proper source from which to generate timing by processing the Synchronization Status Messages
- Provides for transmit and receive override functions of SSM functions
- Includes driver for timing device
- Provision for redundant timing card control and switch over between them for support of equipment redundancy requirements.
- Allows for distributed clock selection across multiple independent processors

Key Benefits

- Fully Standards Compliant
- Multi-processor capable
- Turnkey solution
- OS independent
- Pre-ported to Linux
- Easy to use APIs consistent with other TMS products
- Sample application included
- ANSI C Source Code
- Driver Included for timing device
- Field proven by multiple customers
- Software deployed worldwide
- Zero defect policy

With NComm's proven source code and protocol stack, you have the quality and standard compliance interfaces that you need for less cost than you can do it yourself.

Product Overview

NComm's SSM TMS provides a consistent and standard complaint software package to manage Synchronization Status Message processing and timing distribution in your system. SSM TMS will examine the SSM messages arriving on T1, E1, E3, SONET/SDH, and Sync-E and decide which the proper clock to use is. SSM TMS is fully integrated with NComm's other TMS products to provide access to the SSM messages or can be integrated in with your own interface software.

NComm's SSM TMS will perform the SSM processing according to GR-253, GR-1244, ETSI 300-417-6-1 and G.781 according to the following high level objectives

- Maintain traceability to an identifiable primary clock reference source
- Ensure that higher stratum clocks are never slaved to lower stratum clocks
- Ensure that all Network Elements have both a primary source and a secondary source in case of a primary failure
- Ensure that timing loops are avoided

The SSM TMS will manage the free-run oscillator and the free-run, holdover, and synchronized states. SSM TMS is designed to operate in a multiprocessor system allowing timing card functions and line interfaces to be on separate systems. In addition, extensive routines allow for flexible architectures for managing equipment redundancy.

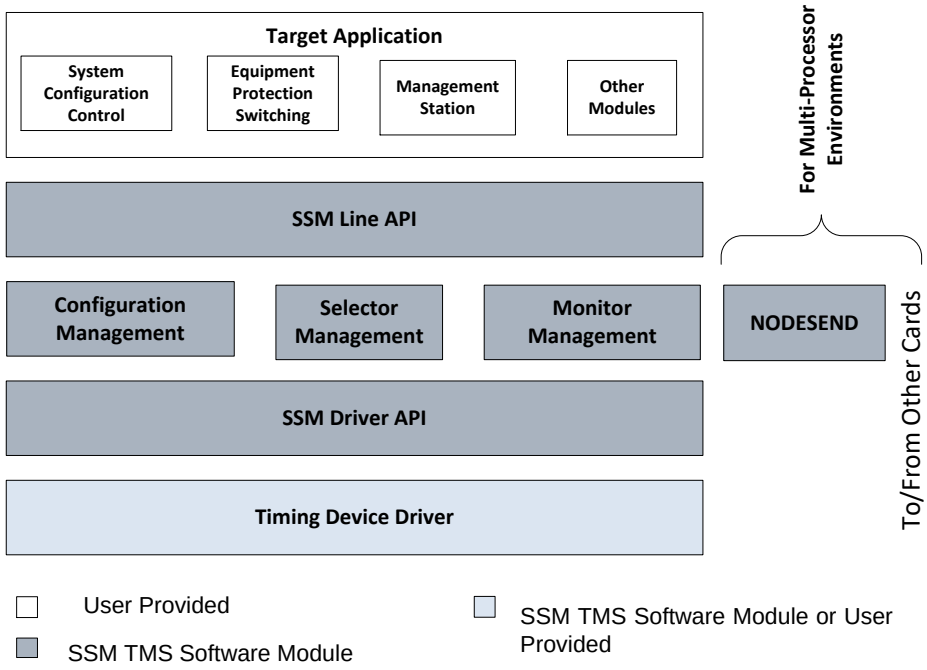
NComm's SSM TMS is supplied as ANSI C source code. User manuals, implementation training and technical support are also included with each license. A sample demo application provides functionality very quickly. This sample application also functions as a guide for integration of the SSM TMS API into the upper management or control systems of your choice.

Applications

- Timing Cards
- System timing distribution
- Central office switching
- Packet/Synchronous network interconnect

SSM TMS Architecture

As in the entire TMS family of OAM software, SSM TMS is architected to be hardware and operating system independent. Well-defined APIs are employed for faster first time integration and ease of reuse.



SSM TMS Software Architecture

The SSM TMS API consists of a set of three ANSI C functions that allows the application to manage all functionality and receive status updates from the SSM TMS software. The APIs provide a clean interface to the SSM software simplifying the integration of the SSM software to the target customer application. The target application is implemented on top of the SSM Line API layer, using the API to access the functionality provided by the SSM software.

The Configuration Management (CMM) provides the interface to control the SSM Software. The application will select the SSM processing algorithms used by SSM TMS and select SONET/SDH modes of operation. In addition, the systems clocking distribution will be described to the CMM so that proper clock routing can be done.

The Selector Manager provides control over hardware devices that route clocks in a system. FPGA, discrete hardware, and other devices can be controlled via the Selection Manager. When a clock switch is required, SSM TMS will issue a series of selection operations so that the hardware will route the clocks properly.

The Monitor Management controls receiving/sending SSM messages and reporting alarm information from the interfaces in the system such at T1, E1, E3, SONET/SDH and SYNCe. The SSM TMS software will use this information to decide the best clock to use. The Monitor is pre-integrated into NComm's TMS interface products or can be easily integrated with existing interface products.

The Timing Device Driver and its associated API provides the interface between the SSM Software and the driver device. The SSM Driver API is comprised of a set of ANSI C functions and macros that handle the interaction with the timing device.