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T1/E1 Trunk Management Software

Trunk Management

NComm T1/E1 Trunk Management Software provides a complete software solution for the implementation of a T1/E1 system. It consists of a set of T1 software modules and E1 software modules that perform all aspects of T1/E1 support, from span alarming and maintenance to channelized signaling processing. Additionally, the T1/E1 software is completely data driven, allowing operating mode, alarm timers, and thresholds to be configurable on a static or run time basis. The suite includes 2 levels of ANSI-C Application Programming Interfaces (APIs), encapsulating the details of T1/E1 operation and the underlying hardware elements, and providing a clean integration to the target system's

Target Applications

- Single and Multiple-span T1/E1
- T1/E1 and M13 multiplexers
- PBX and Channel Bank
- ISDN/PRI
- HDSL transport
- Computer Telephony
- Router/Gateway
- Protection Switching

Main Features

- "Off-the-shelf" T1/E1 interface software providing multiple levels of functionality based on product application
- Supports 1 to N T1/E1 spans, making it ideal for multi-span applications
- Provides full T1/E1 span maintenance and alarming support, with configurable timers and thresholds for alarm detection, loopback activation, and other span conditions
- Robbed bit signaling processing for channelized voice applications, supporting D4 and ESF framing modes for E+M, FXO, FXS, LS, GS and custom signaling modes
- Supports user choice of framer, currently supports generic T1 framer, as well as driver support for Infineon and Dallas families. Call for others.
- Full support for Facility Data Link (FDL) in ESF applications meeting ANSI T1.403 and AT&T TR54016 requirements
- Runs with or without Real Time Operating System (RTOS) on virtually any processor and host environment. Currently ported to pSOS, VxWorks, and Nucleus.
- Simple Application Programming Interfaces (APIs)
- Processor independent ANSI-C source code
- Fully customizable

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T1/E1 Trunk Management Software (TMS) Architecture

The figure below illustrates the TMS software module architecture.

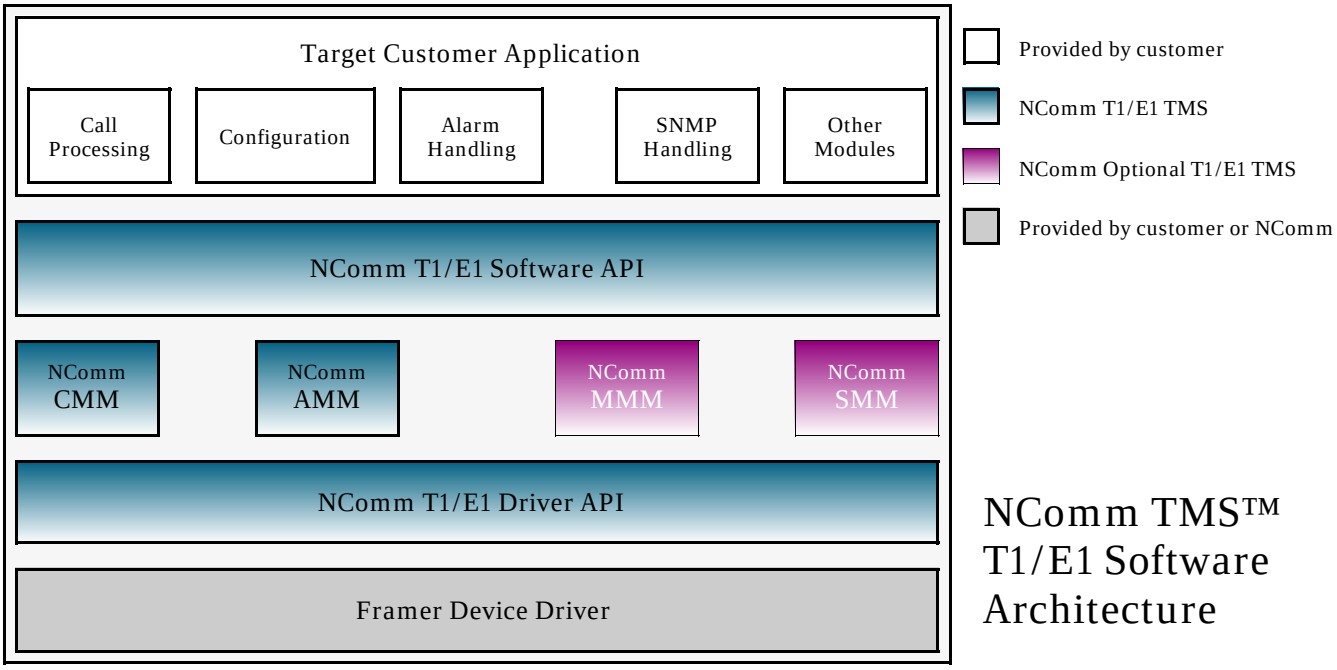
The T1/E1 software API consists of a set of ANSI-C functions and macros that encapsulate all functionality and data of the T1/E1 software. The API provides a clean interface to the T1/E1 software simplifying the integration of the T1/E1 software to the target customer application. The target application is implemented on top of the T1/E1 software API layer, using the API to access the functionality provided by the T1/E1 software.

The Configuration Manager Module (**CMM**) provides the interface point for administering and configuring any of the T1/E1 spans controlled by the T1/E1 software. The CMM maintains the configuration data for the spans, providing a clean interface to configuration data for the other software components, and controlling how span data is updated at run time.

The Alarm Manager Module (**AMM**) maintains and controls the operating state of the individual spans , processing alarm conditions and other runtime conditions as they occur. T1 alarm capabilities meet the standards per T1.231; E1 per I.431, G.731, & ETSI 300-233.

The optional Maintenance Manager Module (**MMM**) provides support for span maintenance operations like loop backs and performance monitoring. For T1, the MMM includes FDL reports for both ANSI T1.403 and AT&T Pub TR54016. It also handles bit-oriented code processing. For E1, Performance Monitoring meets the standards per G.826 and provide a 15 min/24 hour data performance database as well. SA bit processing will conform to G.704. The application can request current performance reports from the MMM for both the remote and local side.

The optional Signaling Manager Module (**SMM**) processes the robbed bit/CAS signaling information on the channels within a T1/E1 span. The SMM processes the signaling bits according to one of several signaling modes (e.g. E+M, FXO, FXS, LS, GS, GR-303 Hybrid Signaling and E1 signaling models as those defined in Q.421 & Q.422.) on a channel by channel basis. Additionally, the SMM allows custom signaling protocols to be defined and processed as well. For applications that do not require signaling bit processing, the SMM functionality can be disabled on each timeslot.



NComm TMS™ T1/E1 Software Architecture

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