Additional References

This appendix describes additional CEM features that are used on the router. This appendix describes the following topics:

STS-1 Frame

A standard STS-1 frame is nine rows by 90 bytes. The first three bytes of each row represent the Section and Line overhead. These overhead bits comprise framing bits and pointers to different parts of the STS-1 frame.

**Figure 1: STS-1 Frame Structure**
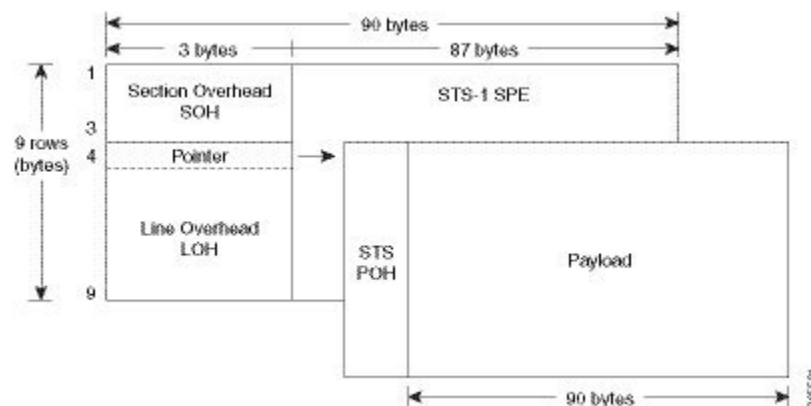
There is one column of bytes in the payload that represents the STS path overhead. This column frequently "floats" throughout the frame. Its location in the frame is determined by a pointer in the Section and Line overhead.

The combination of the Section and Line overhead comprises the transport overhead, and the remainder is the SPE.

STS-1 Overhead

Figure 2: STS-1 Overhead
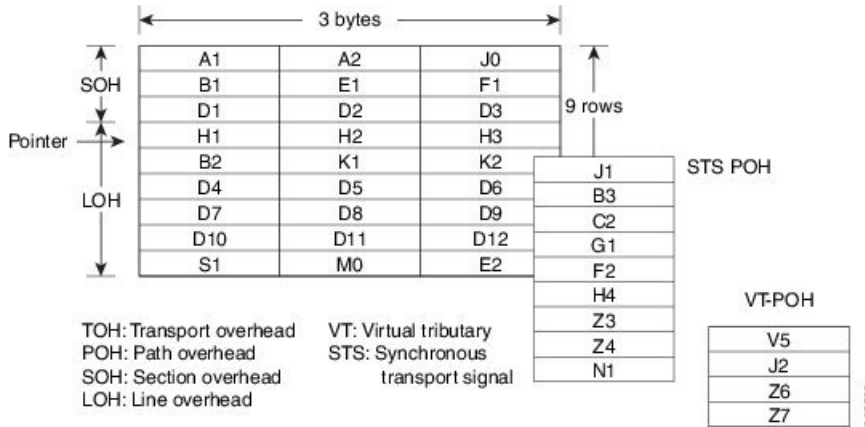
For STS-1, a single frame is transmitted in 125 microseconds, or 8000 frames per second. 8000 fps * 810 B/frame = 51.84 Mbs, of which the payload is roughly 49.5 Mbs, enough to encapsulate 28 DS-1s, a full DS-3, or 21 CEPT-1s.

STS-1electrical ports are also supported. 48 STS-1 electrical ports are supported per card. Each port operates at 51.840 Mbps over a single 75-ohm, 728A or equivalent coaxial span. All the ports are supported.

Asynchronous Mapping for T3 or E3 CEP

An asynchronous mapping for a T3 or E3 in the payload capacity of an STS-1 signal is defined for clear-channel transport of T3 or E3 signals that meet the T3 or E3 requirements in GR-499-CORE. The asynchronous T3 or E3 mapping consists of nine subframes each of 125 μs. Each subframe contains 621 information (I) bits, a set of five stuff control (C) bits, one stuff opportunity (S) bit, and two overhead communication channel (O) bits. The remaining bits of the STS-1 payload capacity are fixed stuff (R) bits. The O-bits are reserved for future overhead communication purposes. The values of the R and O bits are undefined. In each subframe, the set of five C-bits are used to control the S-bit. CCCCC = 00000 is used to indicate that the S-bit is an information bit, while CCCCC = 11111 is used to indicate that the S-bit is a stuff bit. The value of the S-bit (if it is stuff bit) is undefined.

Figure 3: Asynchronous Mapping for T3 or E3 CEP
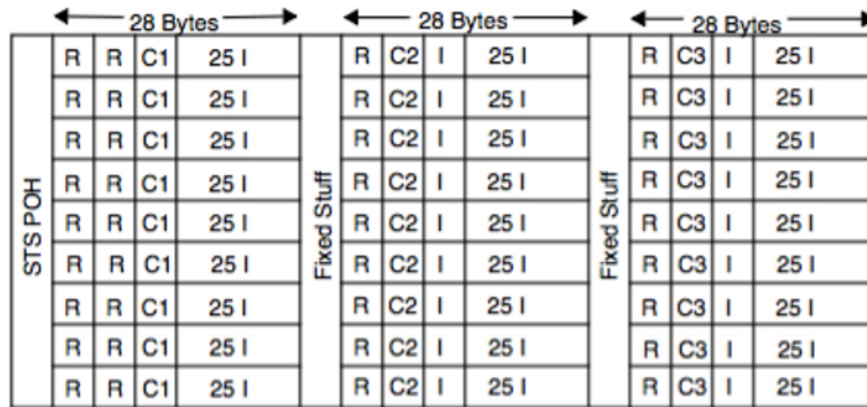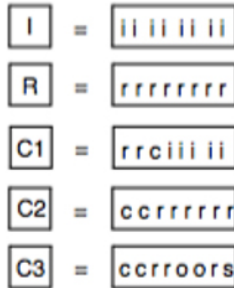
Alarms for T3 or E3 CEP

If an alarm is detected in the DS3 end, the C2 bytes are used to inform the remote Provider Edge (PE). For this, the alarm mapping table has to be followed as shown in the figure below.

Figure 4: Alarm Mapping Table