Timing Interface Using the LXT380

Application Note

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As of January 15, 2001, this document replaces the Level One document known as *AN107*.

Application Note

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1.0 General Description

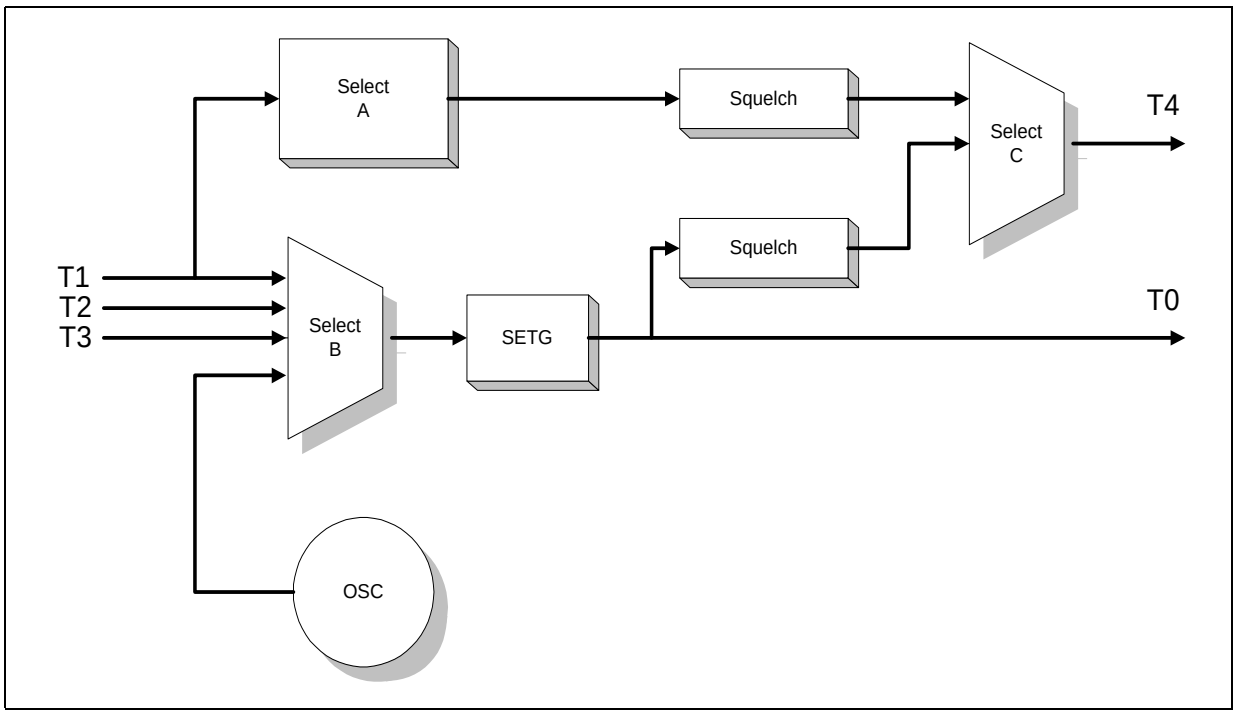
This application note shows how the LXT380 monitoring capabilities can be used to obtain a timing reference derived from any E1 signal.

As an example, a solution for a Sychronous Digital Hierarchy (SDH), G.783 T2 timing interface is presented. This interface is used in SDH multiplexing equipment including E1 tributaries.

ITU-T Recommendation G.783 defines the characteristics of SDH equipment functional blocks. This recommendation also defines the different timing functions. In a SDH multiplexer, several timing sources must be provided to a central Synchronous Equipment Timing Source (SETS). See Figure 1.

In equipment with E1 Plesiochronous Digital Hierarchy (PDH) tributaries, the T2 interface is a timing source (reference clock) derived from any of the incoming tributaries. In this Application Note we present a simple solution for generating the T2 interface using the LXT380.

Figure 1. SDH Timing Interfaces G.783 SETS



1.1 The LXT380 Monitoring Feature

The LXT380 is a 3.3V octal line interface unit targeted to E1 SDH applications. It offers seamless interface with Intel's SDH chipset (SXT6051, SXT6251 and SXT6282).

A typical SDH STM-0 multiplexer requires 21 channels for the E1 tributary inputs. As shown in Figure 2, by employing three LXT380s, the eighth channel in each LXT380 may used for non-intrusive monitoring of any of the tributary inputs/outputs.

In software mode, the monitored channel is selected by writing a 4 bit code in the LXT380 monitoring register MON. In hardware mode, pins A0-A3 perform a similar function. The monitored input will go through the eight channel clock and data recovery. The recovered clock is therefore output at RCLK0. This clock can then be used as the T2 timing interface. The SETG block should include the Jitter Attenuation and filtering characteristics necessary to meet G.783 requirements.

1.2 Conclusion

The LXT380 monitoring channel can simplify the design of timing interfaces in E1 mulit-channel applications. The example discussed in this Application Note applies to SDH multiplexers. However, many other applications can take advantage of this feature.

Figure 2. LXT380 Monitoring