



Application Note 3263

Connecting the Agere *Supermapper* Device Family to Dallas T3 LIUs

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INTRODUCTION

This application note shows a how to connect the Dallas DS3150 or DS315x series of T3 LIUs to the Agere *Supermappers*[™]. The DS3150 and DS315x series of T3 LIUs perform all the functions necessary for interfacing at the physical layer to T3 lines. The DS3150 is a Hardware only, single port T3 LIU, while the DS3151, DS3152, DS3153, and DS3154 offer both Hardware and CPU Bus modes in 1, 2, 3, or 4 ports, respectively. This application note will illustrate connecting to the DS3150 with the connection to the DS315x series being similar.

The Agere *Supermapper* Device Family includes the following: *Supermapper*, *SupermapperLite*, and the Superframer. This application note will discuss applications that pertain only to the following Agere devices: *SupermapperLite* and *Supermapper*.

The following diagrams will illustrate Dallas T3 LIUs from the DS315x series or multiples of the DS3150. Depending on the line card/system design, the designer will need to choose which of the five Dallas LIUs to utilize.

Note: The Agere *Supermapper* Device Family does not contain E3 functionality, or DS3 Jitter Attenuation.

Supermapper is a trademark of Agere Systems Inc.

APPLICATIONS

T3 Clear-Channel Application

In this application, three *SupermapperLites* are configured to terminate/transmit three T3 signals from/to T3 mapped STS-3/STM-1 signals.

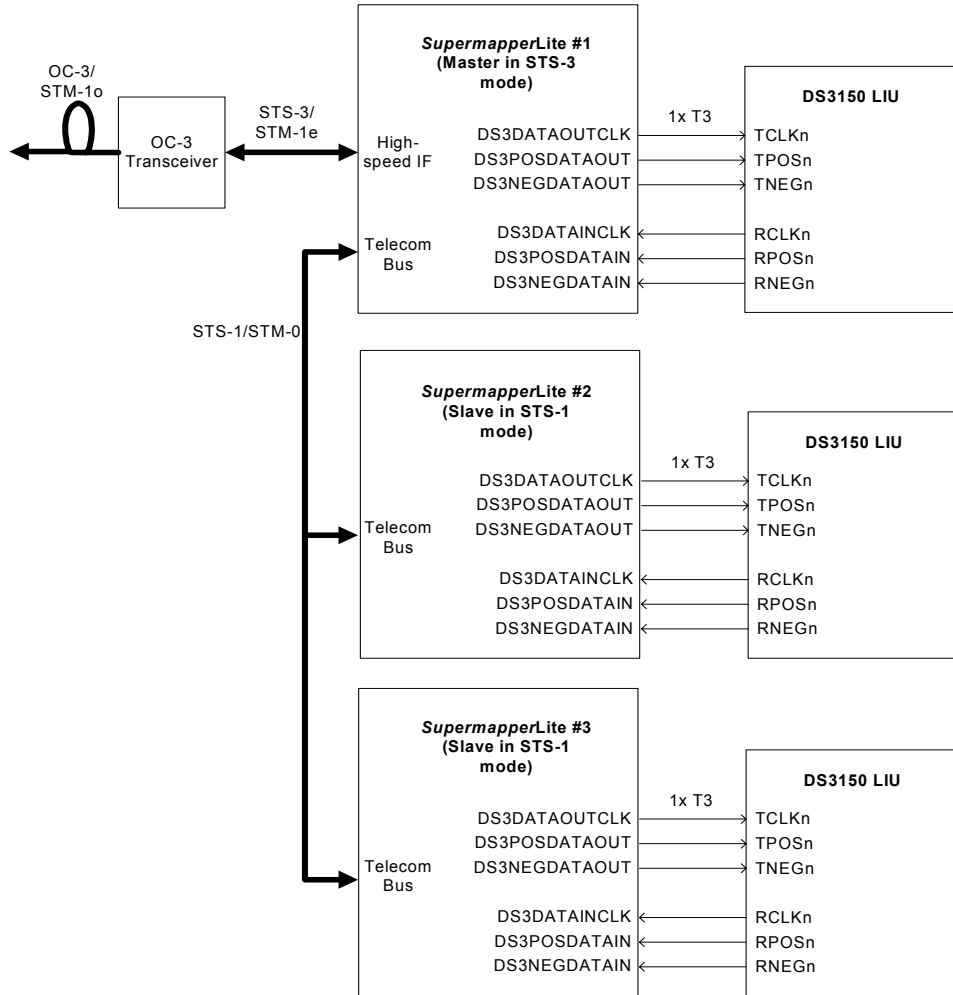


Figure 1. T3 Clear-Channel Application

T3 TransMUX Application

In this application, three *SupermapperLite*s are configured to transMUX between three M13 T3s and an STS-3/STM-1 with full VT-mapped T1s/E1s. Each of the three devices converts one M13 T3 into a single STS-1/AU-3 with VT-mapped DS1s/E1s. Similarly, each of the three devices converts one STS-1/AU-3 with VT-mapped DS1s/E1s into one M13 DS3.

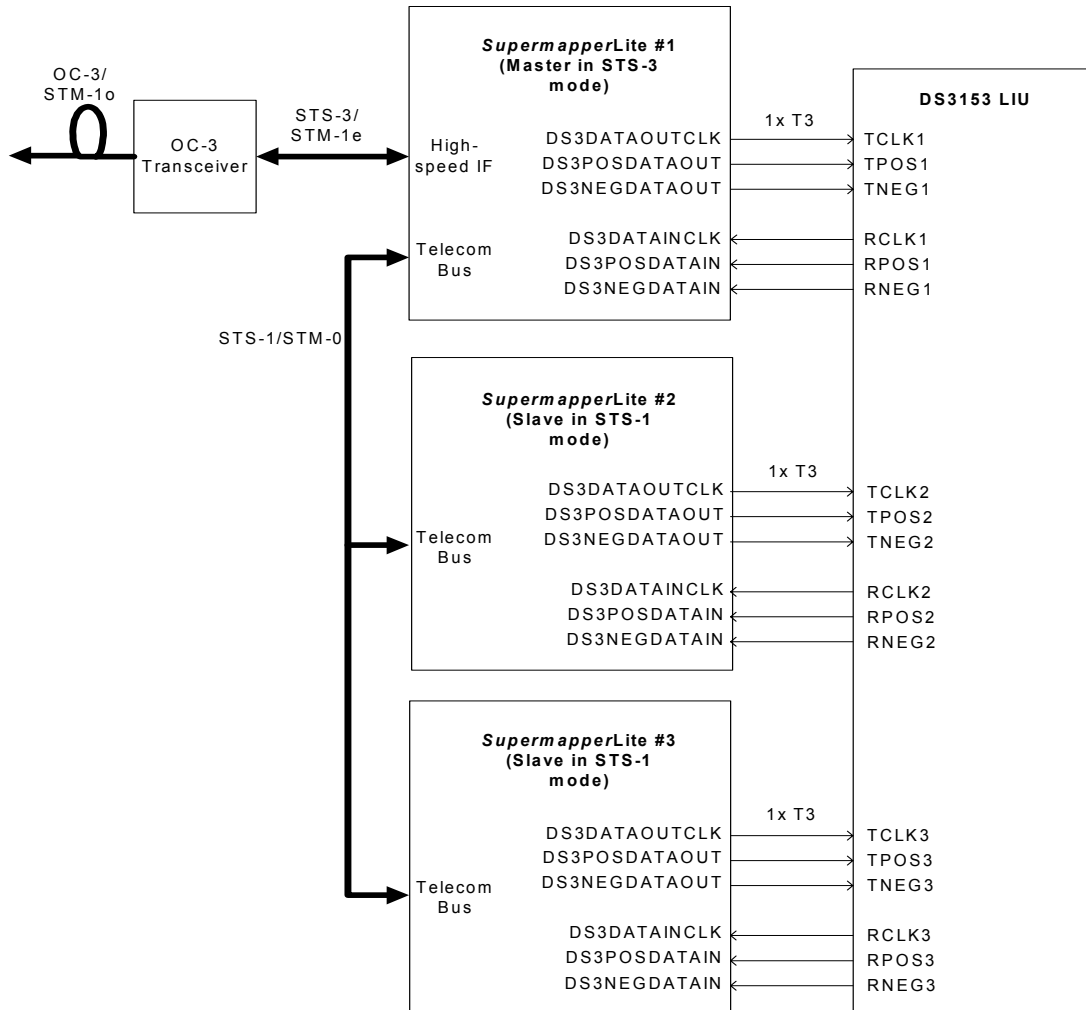


Figure 2. T3 TransMUX Application

T3 and T1/E1 Map/Demap Application

In this application, one Superframer is configured to map/demap between one channelized T3 signal and 28/21 T1/E1 signals.

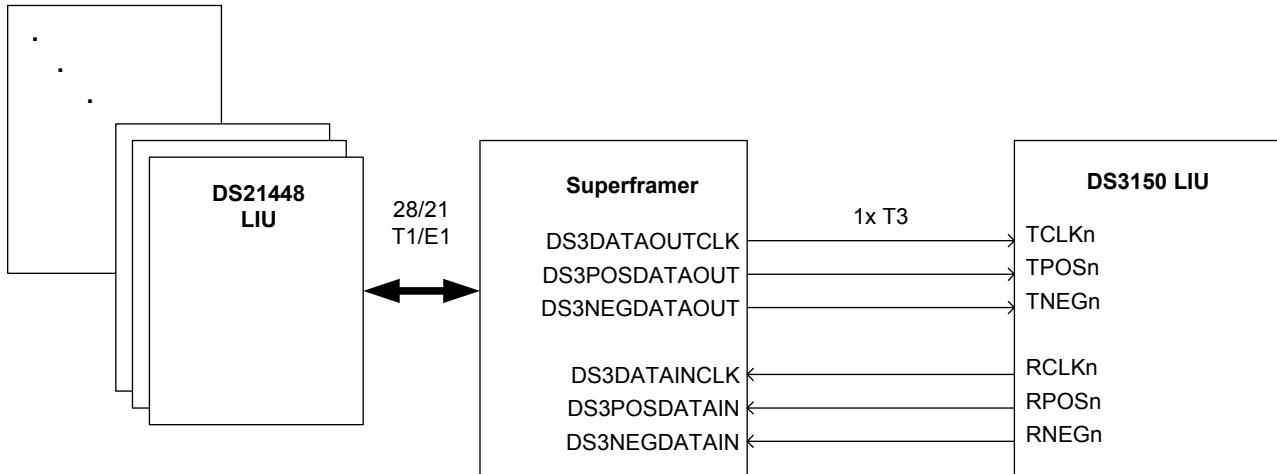


Figure 3. T3 and T1/E1 Map/Demap Application

T3 and DS0/E0 Map/Demap Application

In this application, one Superframer is configured to map/demap between one channelized T3 signal and up to 672/512 time slots of DS0/E0 signals.

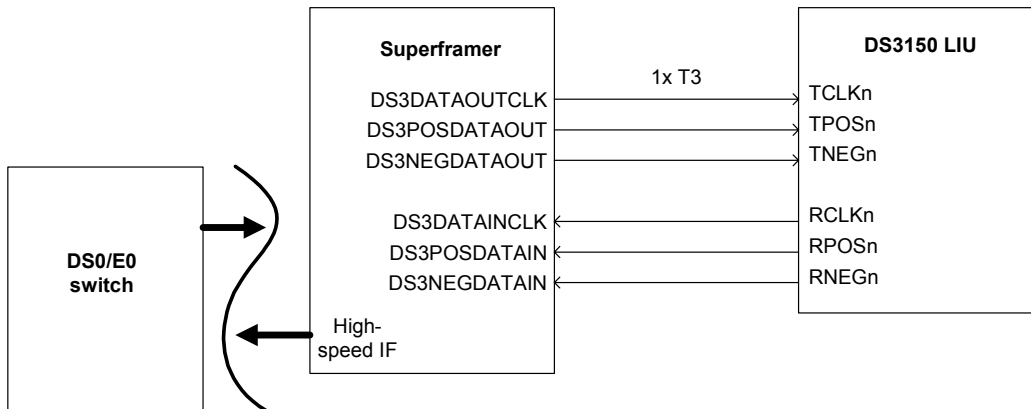


Figure 4. T3 and DS0/E0 Map/Demap Application

DALLAS T3 LINE INTERFACE UNIT CONFIGURATION

With the Agere *Supermappers* in M13 MUX/DeMUX applications, a free-running 44.736MHz T3 clock should be provided to pin DS3DA TAOUTCCLK for M13 functionality. The Agere *Supermappers* T3 line interface is straightforward to connect to the Dallas T3 LIUs. As far as T3 connections are concerned, there are no differences between the master *Supermapper* and slave *Supermapper*.

The interface between a T3 analog line and a Line Interface Unit can be in either bipolar or unipolar mode. Table 1 lists the register settings of the Agere *Supermappers*TM for DS3 Bipolar/Unipolar control.

Table 1. Agere *Supermapper* DS3 Bipolar/Unipolar Control Bits

BLOCK NAME	REGISTER NAME	ADDRESS	DESCRIPTION
SPE	SPE_TDS3_BIPOLAR	0x19 [1]	Transmit DS3 Bipolar/Unipolar. When 1, the DS3 input is bipolar; when 0, the DS3 input is unipolar. Note this is valid only if register 0x30018[13:12] = 11.
SPE	SPE_RDS3_BIPOLAR	0x19 [0]	Receive DS3 Bipolar/Unipolar. When 1, the DS3 output is bipolar; when 0, the DS3 output is unipolar. Note this is valid only if register 0x30018[5:4] = 11.
M13	M13_BIPOLAR	0x5D [0]	M13_BIPOLAR Bit. The M13 performs B3ZS encoding and decoding if this bit is high, i.e., the I/O is in dual-rail mode where each rail carries a polarity of a bipolar I/O. When set to 0, the I/O is a singlerail unencoded NRZ signal.

CONCLUSION

This application note has shown how to connect our T3 LIUs to the Agere *Supermapper* Device Family.

If you have further questions about connecting any of our T3 LIUs, then please contact the Telecommunication Applications support team via email telecom.support@dalsemi.com or call 972-371-6555.

DALLAS T3 LIU INFORMATION

For more information about our T3 LIUs, please consult the data sheets available on our website at www.maxim-ic.com/telecom.