



Keywords: T1, E1, T1/E1, single chip transceivers, SCT, framer, fractional, looped-timed, channel, port

APPLICATION NOTE 309

Interfacing to the Fractional T1 and E1

May 04, 2001

Abstract: This application note provides an example fractional T1 and E1 circuit design using Dallas Semiconductor/Maxim Communications Products T1/E1 single chip transceivers (SCTs) and T1/E1 framers.

Introduction

This application note shows a "looped-timed" application where a Dallas framer or single-chip transceiver (SCT) is configured for a fractional T1/E1 interface.

This application note applies to the following products:

T1 Framers	E1 Framers	T1 SCTS	E1 SCTS	T1/E1 SCTS
DS2141	DS2143	DS2151	DS2153	DS2156
DS21Q41	DS21Q43	DS2152	DS2154	DS2155
DS21Q42	DS21Q44	DS21352	DS21354	DS21Q55
DS21FF42	DS21FF44	DS21552	DS21554	DS21455
DS21FT42	DS21FT44	DS21Q552	DS21Q554	DS21458
		DS21Q352	DS21Q354	DS36528
				DS26524
				DS26522
				DS26521
				DS26519
				DS26518

General Configuration

It is common for a T1/E1 carrier subscriber to not have the full T1/E1 rate of service, but a fractional T1 or E1 service, since the full bandwidth may not be needed or affordable. The circuit shown in **Figure 1** shows an example of a fractional T1/E1 circuit design, where the application is "looped-timed" and connected to a V.35/RS-449/S530 interface. In this figure, the transmit and receive FT1/E1 streams occupy the same time slots. The DS2175 is our T1/CEPT Elastic Store IC and the XR-T8000 is the Exar Clock Synchronizer/Adaptor for Communications IC. The idle registers on the Dallas framer/SCT can be used to fill unused channels, and the used channels do not need to be contiguous. RCHBLK can be

used with TCHBLK to allow up to three additional FT1/E1 ports. Reset should be activated after all the clocks are stable.

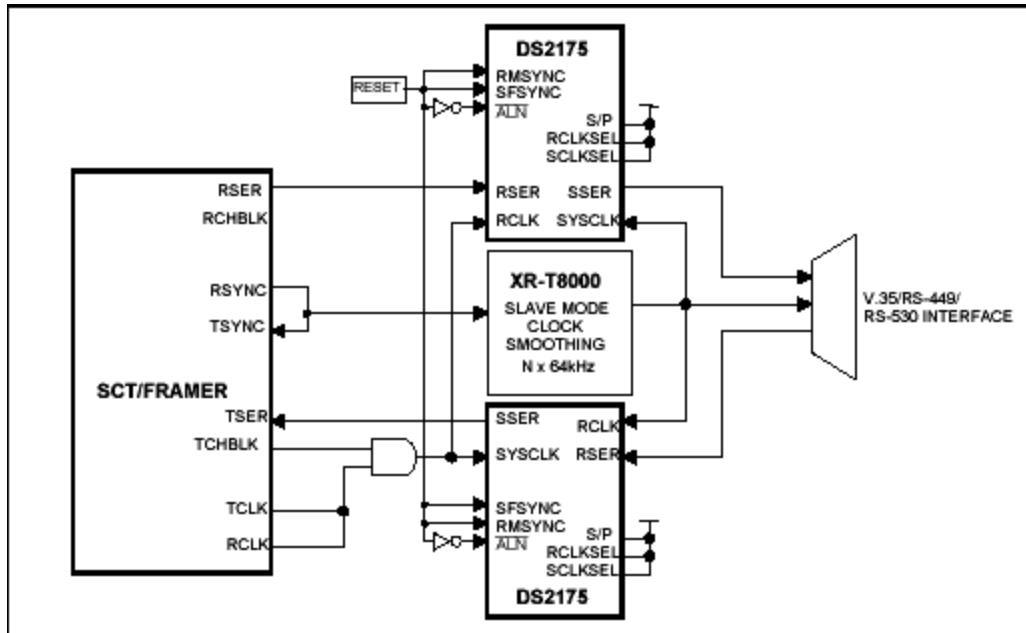


Figure 1. Fractional T1/E1 to V.35 interface.

Conclusion

This application note has shown how to design our framers/SCTs for fractional T1/E1 in a "loop-timed" application.

If you have further questions about fractional T1/E1, please contact the [Telecommunication Applications support team](#).

Dallas Framer/SCT Information

For more information about our framers/SCTs, please consult the data sheets available on our website at www.maximintegrated.com/telecom.

Related Parts		
DS21352	3.3V DS21352 and 5V DS21552 T1 Single Chip Transceivers	
DS21354	3.3V/5V E1 Single Chip Transceivers (SCT)	
DS2141A	T1 Controller	
DS2143	E1 Controller	
DS21455	Quad T1/E1/J1 Transceivers	Free Samples
DS21458	Quad T1/E1/J1 Transceivers	Free Samples
DS2152	Enhanced T1 Single Chip Transceiver	

DS2154	Enhanced E1 Single Chip Transceiver	
DS21552	3.3V DS21352 and 5V DS21552 T1 Single Chip Transceivers	
DS21554	3.3V/5V E1 Single Chip Transceivers (SCT)	Free Samples
DS21FF42	4 x 4 16 Channel T1 Framer / 4 x 3 12 Channel T1 Framer	
DS21FF44	4x3 Twelve Channel E1 Framer / 4x4 Sixteen Channel E1 Framer	
DS21FT42	4 x 4 16 Channel T1 Framer / 4 x 3 12 Channel T1 Framer	
DS21FT44	4x3 Twelve Channel E1 Framer / 4x4 Sixteen Channel E1 Framer	Free Samples
DS21Q352	Quad T1/E1 Transceiver (3.3V, 5.0V)	
DS21Q354	Quad T1/E1 Transceiver (3.3V, 5.0V)	
DS21Q42	Enhanced Quad T1 Framer	
DS21Q44	Enhanced Quad E1 Framer	
DS21Q552	Quad T1/E1 Transceiver (3.3V, 5.0V)	
DS21Q554	Quad T1/E1 Transceiver (3.3V, 5.0V)	
DS26518	8-Port T1/E1/J1 Transceiver	Free Samples
DS26519	16-Port T1/E1/J1 Transceiver	Free Samples
DS26521	Single T1/E1/J1 Transceiver	Free Samples
DS26522	Dual T1/E1/J1 Transceiver	Free Samples
DS26524	Quad T1/E1/J1 Transceiver	Free Samples
DS26528	Octal T1/E1/J1 Transceiver	Free Samples

More Information

For Technical Support: <http://www.maximintegrated.com/support>

For Samples: <http://www.maximintegrated.com/samples>

Other Questions and Comments: <http://www.maximintegrated.com/contact>

Application Note 309: <http://www.maximintegrated.com/an309>

APPLICATION NOTE 309, AN309, AN 309, APP309, Appnote309, Appnote 309

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