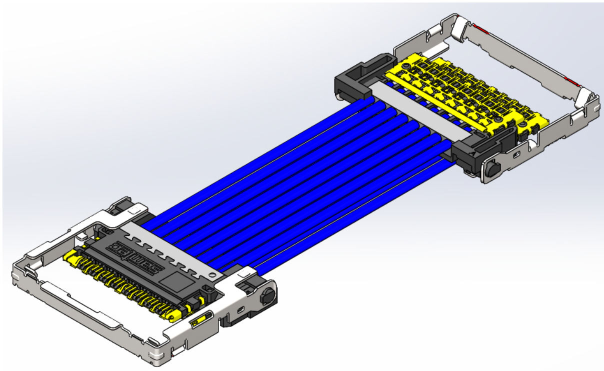
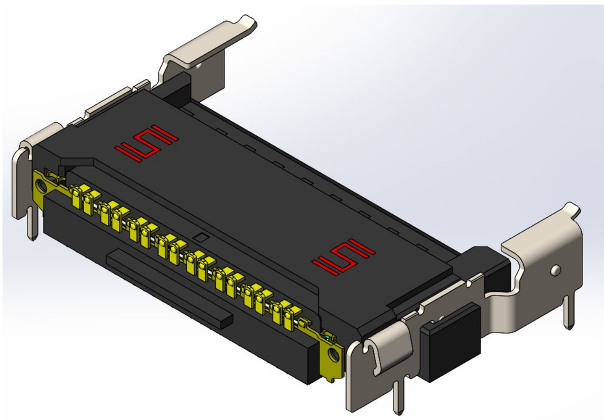
High Speed Characterization Report

CPC-16-1-XX.X-2-02-L-2



Mated with:

CPI-16-01-2-S-RA-0-L-XR



Description:

Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Samtec Inc.
520 Park East Blvd.
New Albany IN 47151-1147 USA

WWW.SAMTEC.COM
1-800-SAMTEC-9 (US & Canada)
SIG@samtec.com
Phone: 812-944-6733
Fax: 812-948-5047

Report Revision: 12/11/2024

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
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Table of Contents

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Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Cable Assembly Overview

The CPC Cable Assembly is constructed using 34 AWG ultra-low skew twinax cable, single or double row structures with up to 16 differential pairs. Si-Fly™ is an ultra low-profile interconnect for placement adjacent to the IC package, under heat sinks or other cooling hardware. The data in this report is applicable to 06.0-, 10.0- and 14.0-inch-long cable assemblies using 92-ohm twinax and Pin A1 to B1 wiring.

Each CPC cable assembly was tested by mating it to the CPI-16-01-2-S-RA-0-L-XR connector at both ends. One sample of each assembly was tested. The actual part numbers that were tested are shown in Table 1, which also identifies End 1 and End 2 of each assembly. A relative sample picture is shown in Figure1.

Length	Part Number	End 1	End 2
06.0 inches	CPC-16-1-06.0-2-02-L-2	CPC	CPC
10.0 inches	CPC-16-1-10.0-2-02-L-2	CPC	CPC
14.0 inches	CPC-16-1-14.0-2-02-L-2	CPC	CPC

Table 1: Sample Description

Figure 1: Test Sample

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Frequency Domain Data Summary

Bandwidth Figures – Differential Insertion Loss

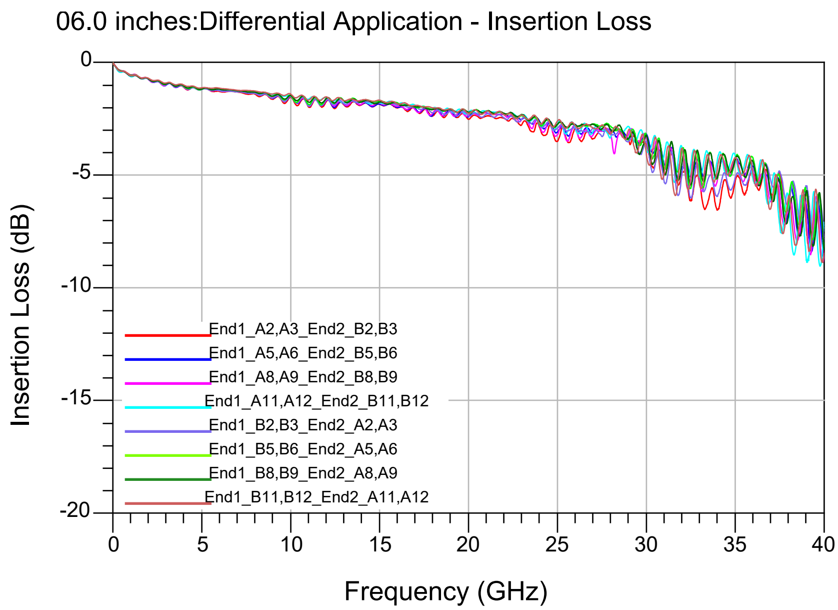

Figure 2

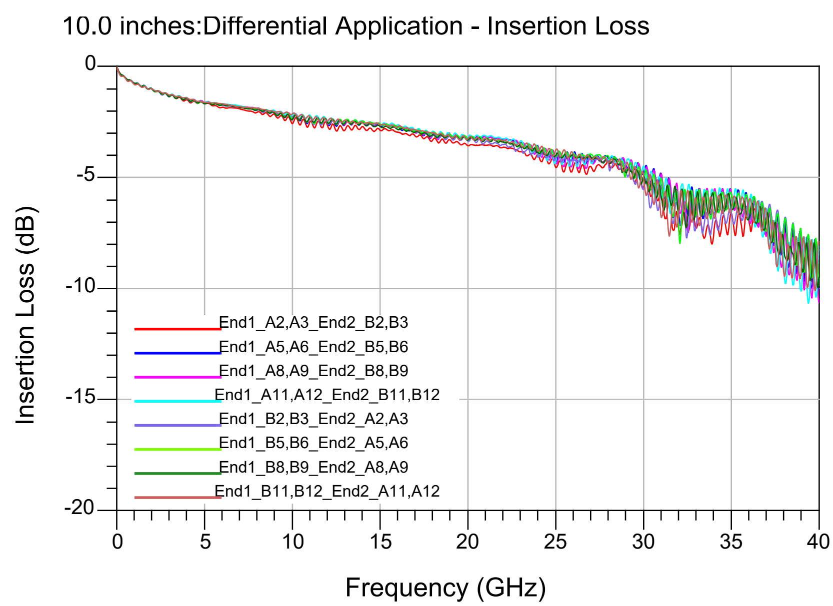

Figure 3

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

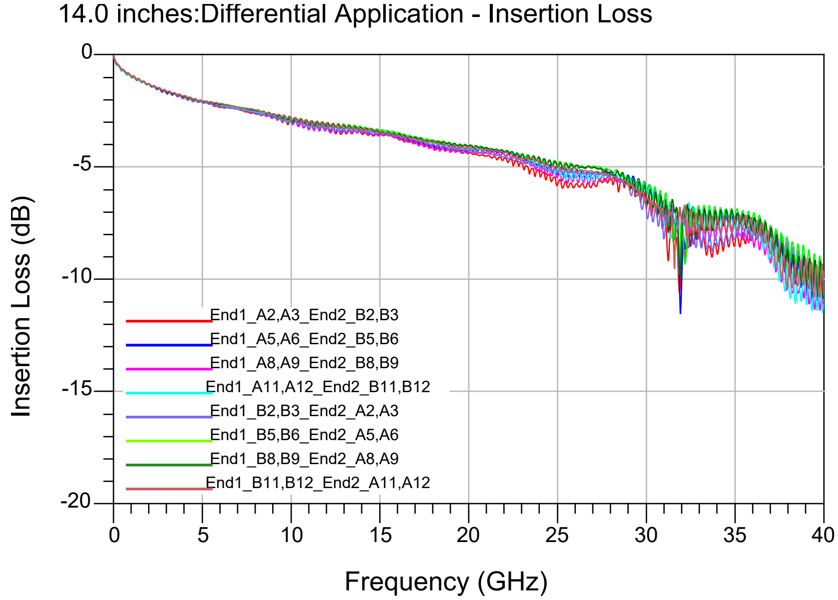

Figure 4

Samtec Inc.
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New Albany IN 47151-1147 USA

Phone: 812-944-6733
Fax: 812-948-5047
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Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Time Domain Data Summary

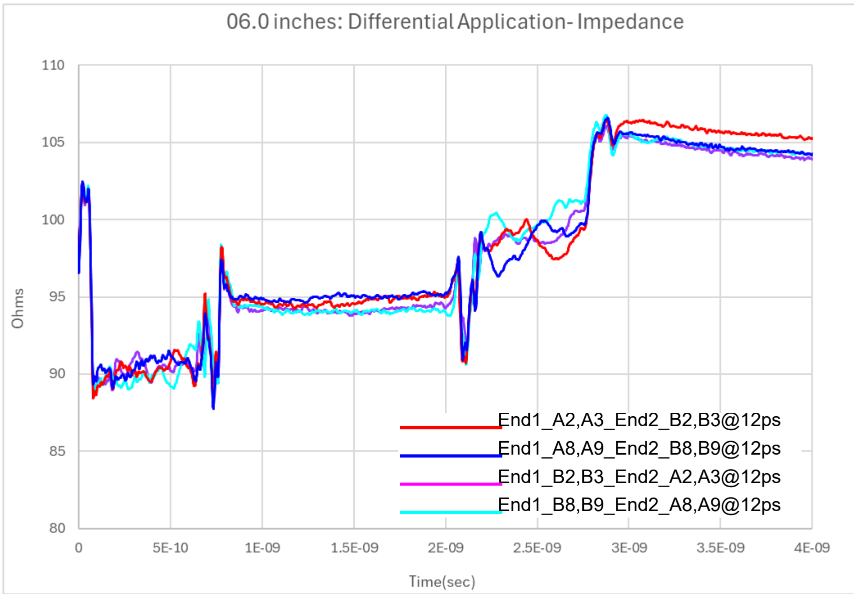


Figure 5

Because the same type of cable is used in the cable assemblies with different lengths, only the impedance profile of 06.0 inches cable assembly is reported.

Table 2 - Propagation Delay (Cable Assembly)				
Driver	**Receiver**	**06.0 inches**	**10.0 inches**	**14.0 inches**
End1_A2, A3	End2_B2, B3	0.793 ns	1.272 ns	1.756 ns
End1_A5, A6	End2_B5, B6	0.794 ns	1.273 ns	1.756 ns
End1_A8, A9	End2_B8, B9	0.795 ns	1.272 ns	1.761 ns
End1_A11, A12	End2_B11, B12	0.797 ns	1.277 ns	1.766 ns
End1_B2, B3	End2_A2, A3	0.794 ns	1.274 ns	1.755 ns
End1_B5, B6	End2_A5, A6	0.794 ns	1.272 ns	1.756 ns
End1_B8, B9	End2_A8, A9	0.793 ns	1.276 ns	1.754 ns
End1_B11, B12	End2_A11, A12	0.797 ns	1.281 ns	1.763 ns

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Characterization Details

This report presents data that characterizes the signal integrity response of a cable assembly in a controlled printed circuit board (PCB) environment. All efforts are made to reveal typical best-case responses inherent to the system under test (SUT).

In this report, the SUT includes the mating connectors, cable assembly, and footprint effects on a typical multi-layer PCB. PCB effects (trace loss) are de-embedded from test data. Board related effects, such as pad-to-ground capacitance, are included in the data presented in this report.

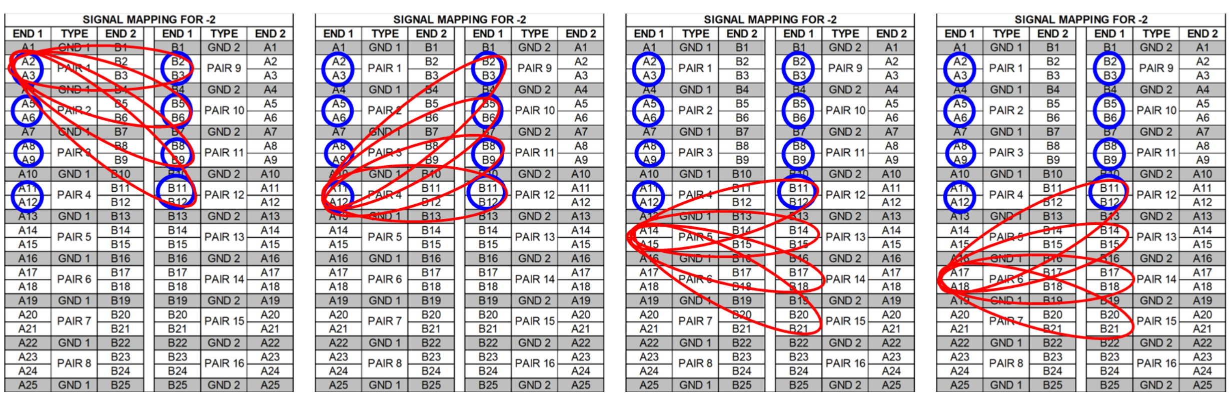
Additionally, intermediate test signal connections can mask the cable assembly's true performance. Such connection effects are minimized by using high performance test cables and adapters. Where appropriate, calibration and de-embedding routines are also used to reduce residual effects.

Differential and Single-Ended Data

Most Samtec cable assemblies can be used successfully in both differential and single-ended applications. However, electrical performance will differ depending on the signal drive type. In this report, data is presented for "GSSG" differential drive configuration.

Pin Configuration

The CPx connector assembly follows a fixed pin assignment. For this cable assembly, the following configurations are evaluated



NEXT

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

SIGNAL MAPPING FOR -2

END 1	TYPE	END 2	END 1	TYPE	END 2
A1	GND 1	B1	B1	GND 2	A1
A2	PAIR 1	B2	B2	PAIR 9	A2
A3		B3	B3		A3
A4	GND 1	B4	B4	GND 2	A4
A5	PAIR 2	B5	B5	PAIR 10	A5
A6		B6	B6		A6
A7	GND 1	B7	B7	GND 2	A7
A8	PAIR 3	B8	B8	PAIR 11	A8
A9		B9	B9		A9
A10	GND 1	B10	B10	GND 2	A10
A11	PAIR 4	B11	B11	PAIR 12	A11
A12		B12	B12		A12
A13	GND 1	B13	B13	GND 2	A13
A14	PAIR 5	B14	B14	PAIR 13	A14
A15		B15	B15		A15
A16	GND 1	B16	B16	GND 2	A16
A17	PAIR 6	B17	B17	PAIR 14	A17
A18		B18	B18		A18
A19	GND 1	B19	B19	GND 2	A19
A20	PAIR 7	B20	B20	PAIR 15	A20
A21		B21	B21		A21
A22	GND 1	B22	B22	GND 2	A22
A23	PAIR 8	B23	B23	PAIR 16	A23
A24		B24	B24		A24
A25	GND 1	B25	B25	GND 2	A25

SIGNAL MAPPING FOR -2

END 1	TYPE	END 2	END 1	TYPE	END 2
A1	GND 1	B1	B1	GND 2	A1
A2	PAIR 1	B2	B2	PAIR 9	A2
A3		B3	B3		A3
A4	GND 1	B4	B4	GND 2	A4
A5	PAIR 2	B5	B5	PAIR 10	A5
A6		B6	B6		A6
A7	GND 1	B7	B7	GND 2	A7
A8	PAIR 3	B8	B8	PAIR 11	A8
A9		B9	B9		A9
A10	GND 1	B10	B10	GND 2	A10
A11	PAIR 4	B11	B11	PAIR 12	A11
A12		B12	B12		A12
A13	GND 1	B13	B13	GND 2	A13
A14	PAIR 5	B14	B14	PAIR 13	A14
A15		B15	B15		A15
A16	GND 1	B16	B16	GND 2	A16
A17	PAIR 6	B17	B17	PAIR 14	A17
A18		B18	B18		A18
A19	GND 1	B19	B19	GND 2	A19
A20	PAIR 7	B20	B20	PAIR 15	A20
A21		B21	B21		A21
A22	GND 1	B22	B22	GND 2	A22
A23	PAIR 8	B23	B23	PAIR 16	A23
A24		B24	B24		A24
A25	GND 1	B25	B25	GND 2	A25

SIGNAL MAPPING FOR -2

END 1	TYPE	END 2	END 1	TYPE	END 2
A1	GND 1	B1	B1	GND 2	A1
A2	PAIR 1	B2	B2	PAIR 9	A2
A3		B3	B3		A3
A4	GND 1	B4	B4	GND 2	A4
A5	PAIR 2	B5	B5	PAIR 10	A5
A6		B6	B6		A6
A7	GND 1	B7	B7	GND 2	A7
A8	PAIR 3	B8	B8	PAIR 11	A8
A9		B9	B9		A9
A10	GND 1	B10	B10	GND 2	A10
A11	PAIR 4	B11	B11	PAIR 12	A11
A12		B12	B12		A12
A13	GND 1	B13	B13	GND 2	A13
A14	PAIR 5	B14	B14	PAIR 13	A14
A15		B15	B15		A15
A16	GND 1	B16	B16	GND 2	A16
A17	PAIR 6	B17	B17	PAIR 14	A17
A18		B18	B18		A18
A19	GND 1	B19	B19	GND 2	A19
A20	PAIR 7	B20	B20	PAIR 15	A20
A21		B21	B21		A21
A22	GND 1	B22	B22	GND 2	A22
A23	PAIR 8	B23	B23	PAIR 16	A23
A24		B24	B24		A24
A25	GND 1	B25	B25	GND 2	A25

SIGNAL MAPPING FOR -2

END 1	TYPE	END 2	END 1	TYPE	END 2
A1	GND 1	B1	B1	GND 2	A1
A2	PAIR 1	B2	B2	PAIR 9	A2
A3		B3	B3		A3
A4	GND 1	B4	B4	GND 2	A4
A5	PAIR 2	B5	B5	PAIR 10	A5
A6		B6	B6		A6
A7	GND 1	B7	B7	GND 2	A7
A8	PAIR 3	B8	B8	PAIR 11	A8
A9		B9	B9		A9
A10	GND 1	B10	B10	GND 2	A10
A11	PAIR 4	B11	B11	PAIR 12	A11
A12		B12	B12		A12
A13	GND 1	B13	B13	GND 2	A13
A14	PAIR 5	B14	B14	PAIR 13	A14
A15		B15	B15		A15
A16	GND 1	B16	B16	GND 2	A16
A17	PAIR 6	B17	B17	PAIR 14	A17
A18		B18	B18		A18
A19	GND 1	B19	B19	GND 2	A19
A20	PAIR 7	B20	B20	PAIR 15	A20
A21		B21	B21		A21
A22	GND 1	B22	B22	GND 2	A22
A23	PAIR 8	B23	B23	PAIR 16	A23
A24		B24	B24		A24
A25	GND 1	B25	B25	GND 2	A25

FEXT

Differential Impedance (denoted by blue circles):

- GSSG (Ground-positive Signal-negative Signal-Ground)

Differential Crosstalk (denoted by red circles):

- NEXT (Near End Crosstalk)
- FEXT (Far End Crosstalk)

See Appendix C – Product and Test System Descriptions for details

Signal Edge Speed (Rise Time)

In pulse signaling applications, the perceived performance of the interconnect can vary significantly depending on the edge rate or rise time of the exciting signal. For this report, the fastest rise time used was 12 ps. Generally, this should demonstrate worst-case performance.

In many systems, the signal edge rate will be significantly slower at the cable assembly than at the driver launch point. To estimate interconnect performance at other edge rates, data is provided for several rise times between 12 ps and 100 ps.

Unless otherwise stated, measured rise times were at 20%-80% signal levels.

Samtec Inc.
520 Park East Blvd.
New Albany IN 47151-1147 USA

WWW.SAMTEC.COM
1-800-SAMTEC-9 (US & Canada)
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Fax: 812-948-5047
Report Revision: 12/11/2024

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Frequency Domain Data

Frequency Domain parameters are helpful in evaluating the cable assembly system's signal loss and crosstalk characteristics across a range of sinusoidal frequencies. In this report, parameters presented in the Frequency Domain are Insertion Loss, Return Loss, Near-End and Far-End Crosstalk, and Mode Conversion. Other parameters or formats, such as VSWR or S-Parameters, may be available upon request. Please contact our Signal Integrity Group at sig@samtec.com for more information.

Frequency performance characteristics for the SUT are generated directly from network analyzer measurements.

Time Domain Data

Time Domain parameters indicate impedance mismatch versus length and signal propagation time in a pulsed signal environment. The measured S-Parameters from the network analyzer are post-processed using Keysight ADS to obtain the time domain response for signal propagation time. The Time Domain procedure is provided in Appendix D of this report. Parameters or formats not included in this report may be available upon request. Please contact our Signal Integrity Group at sig@samtec.com for more information.

In this report, propagation delay is defined as the signal propagation time through the cable assembly, mating connectors, and connector footprint. It includes 2.45 mm of PCB trace on both sides of the CPI board connector. Delay is measured at 100 picoseconds signal rise-time. Delay is calculated as the difference in time measured between the 50% amplitude levels of the input and output pulses.

Additional information concerning test conditions and procedures is located in the appendices of this report. Further information may be obtained by contacting our Signal Integrity Group at sig@samtec.com.

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Appendix A – Frequency Domain Responses

Differential Application – Insertion Loss

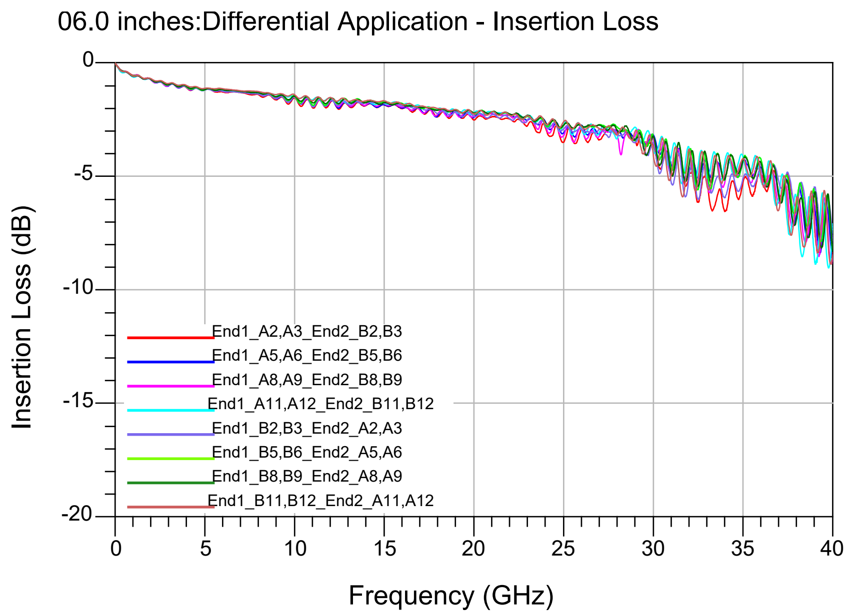

Figure 6

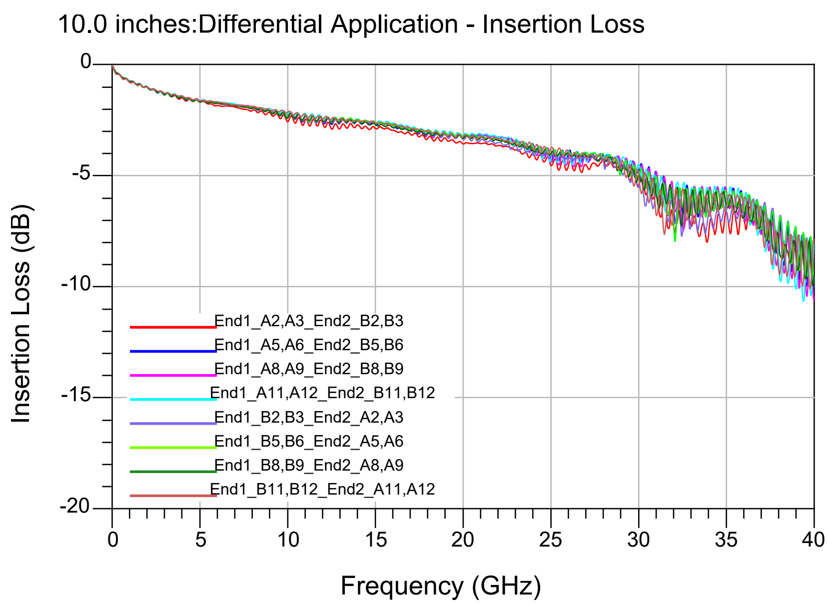

Figure 7

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

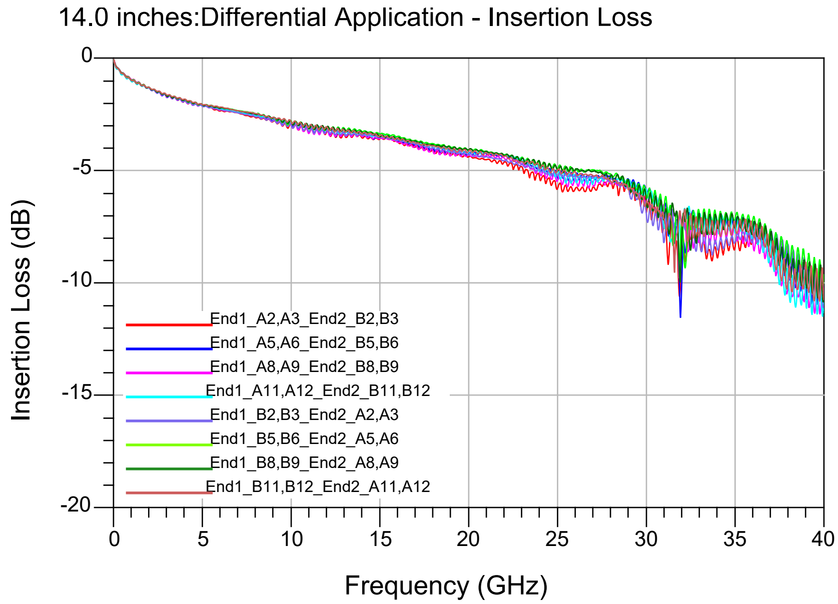

Figure 8

Differential Application – Return Loss

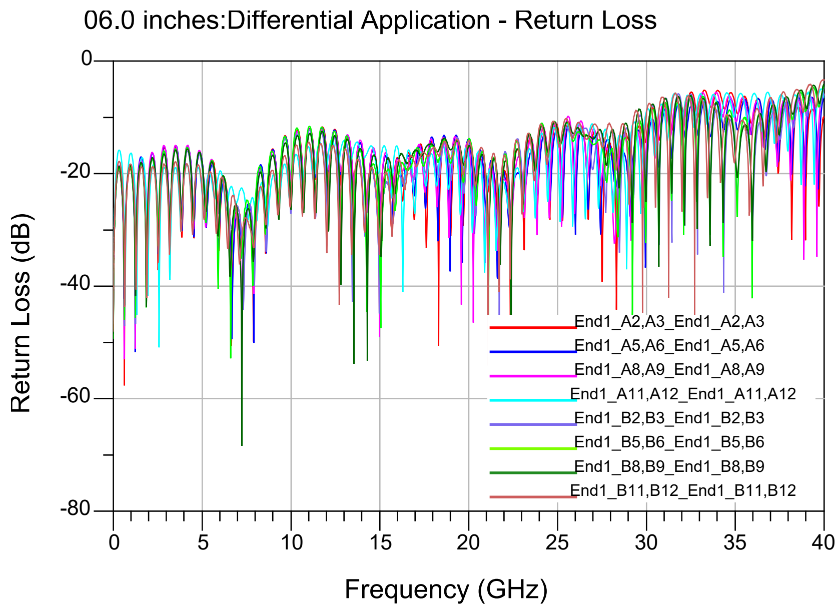

Figure 9

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

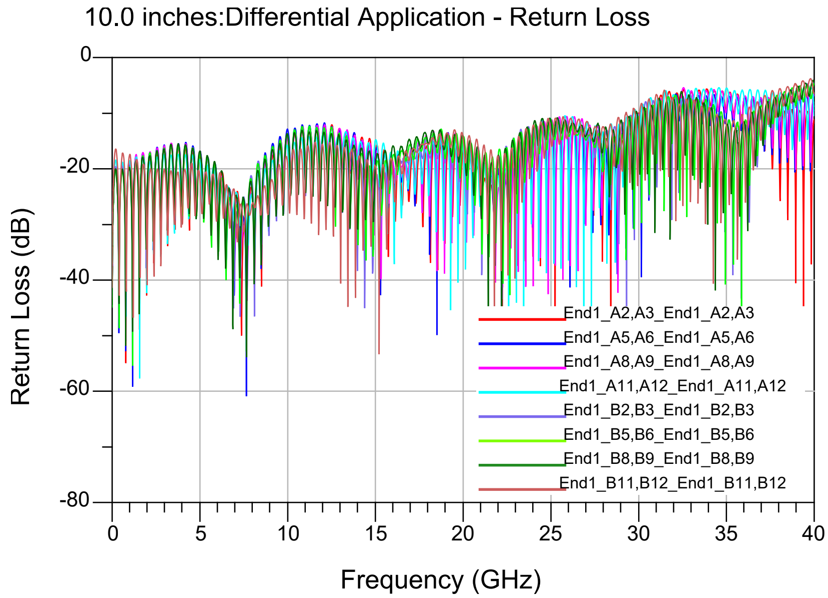

Figure 10

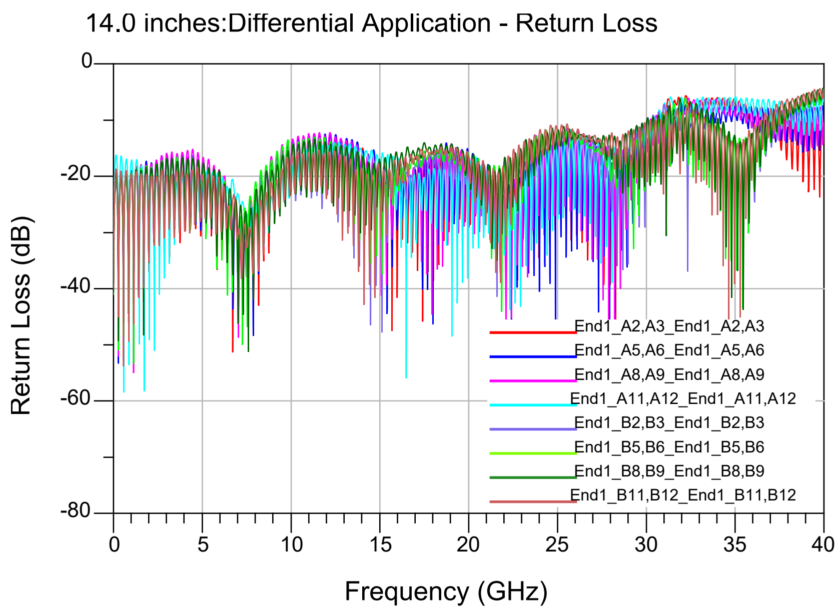

Figure 11

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Differential Application – NEXT Configurations

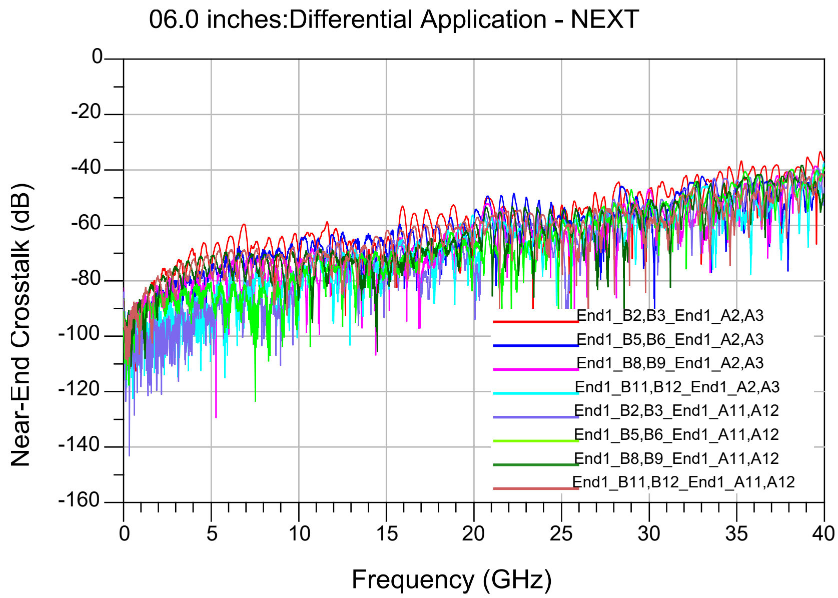

Figure 12

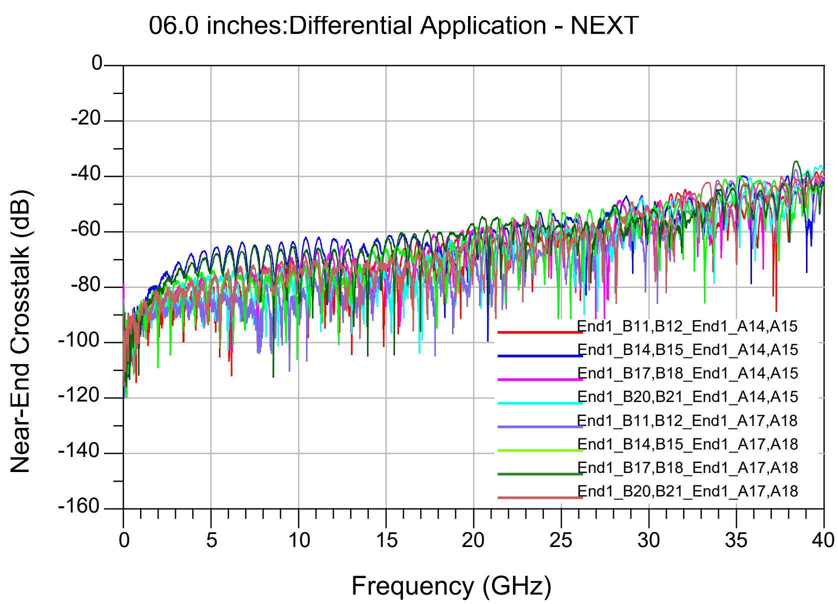

Figure 13

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

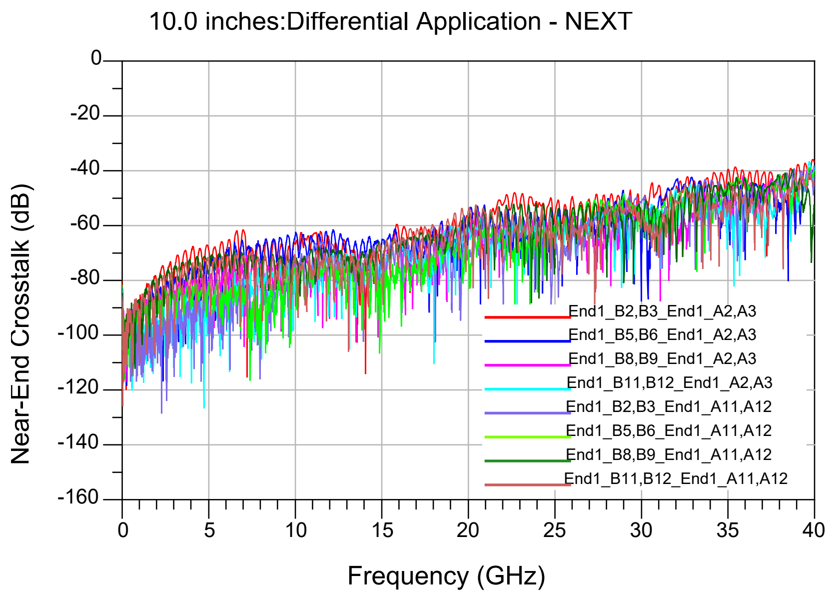

Figure 14

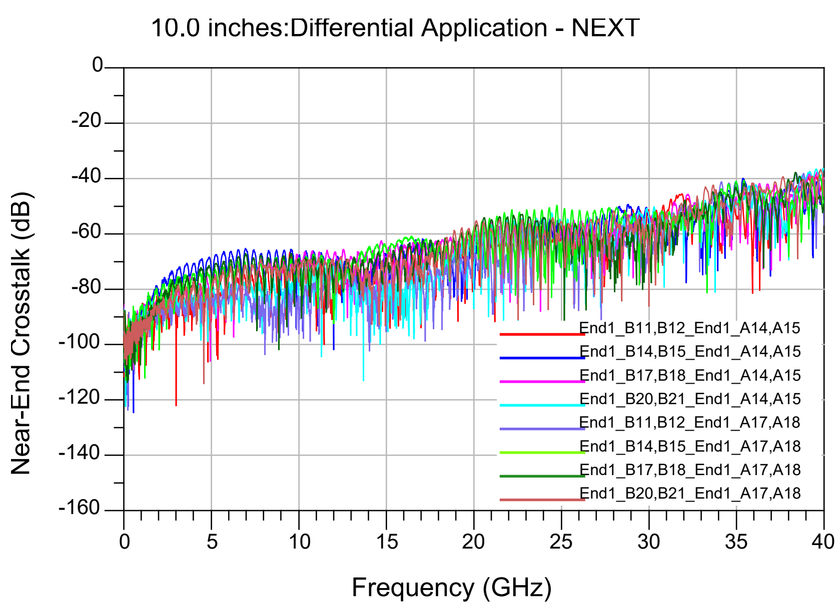

Figure 15

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

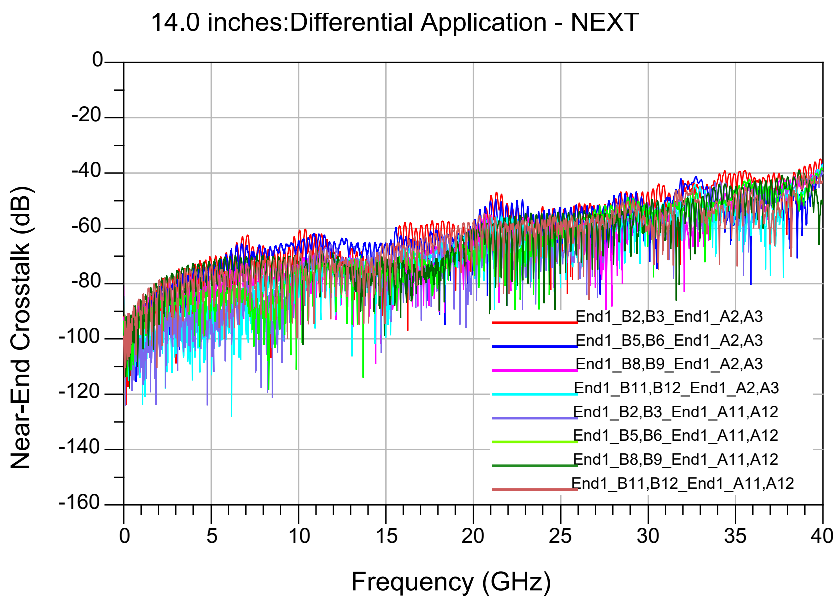

Figure 16

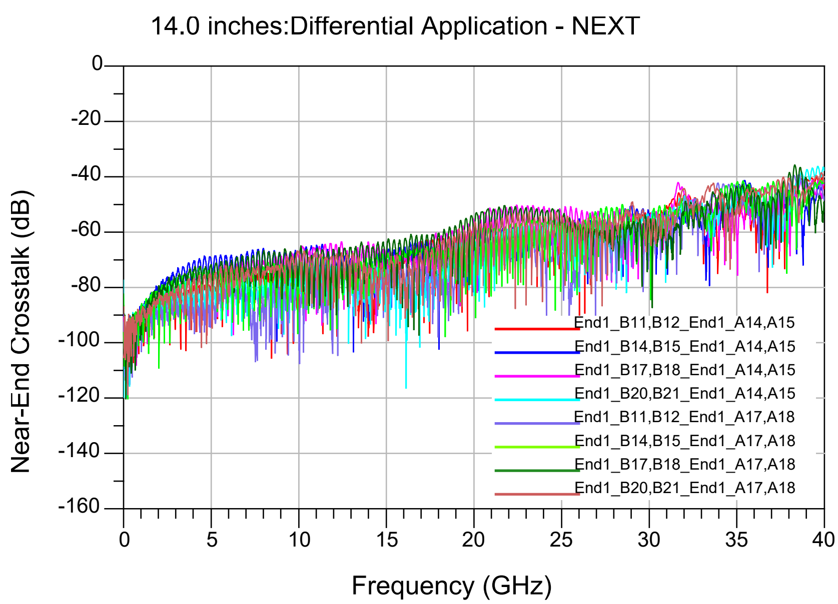

Figure 17

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Differential Application – FEXT Configurations

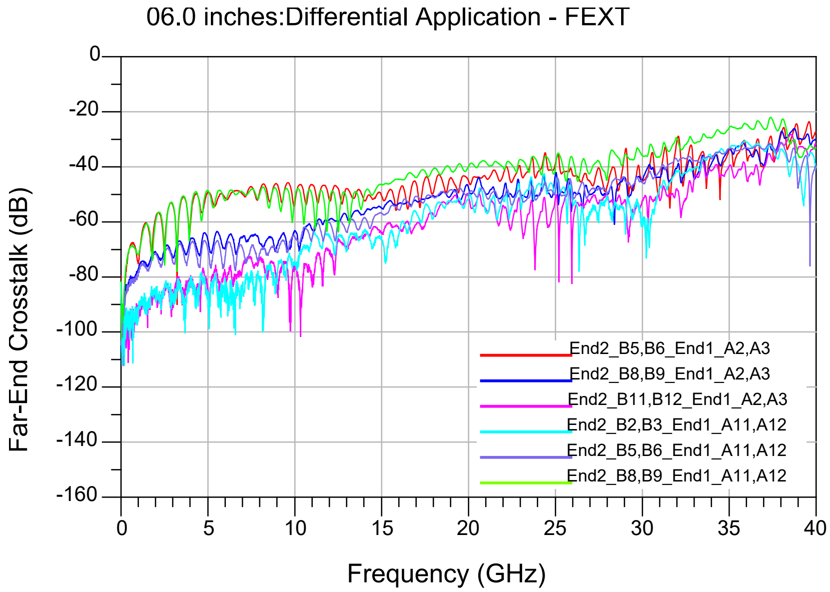

Figure 18

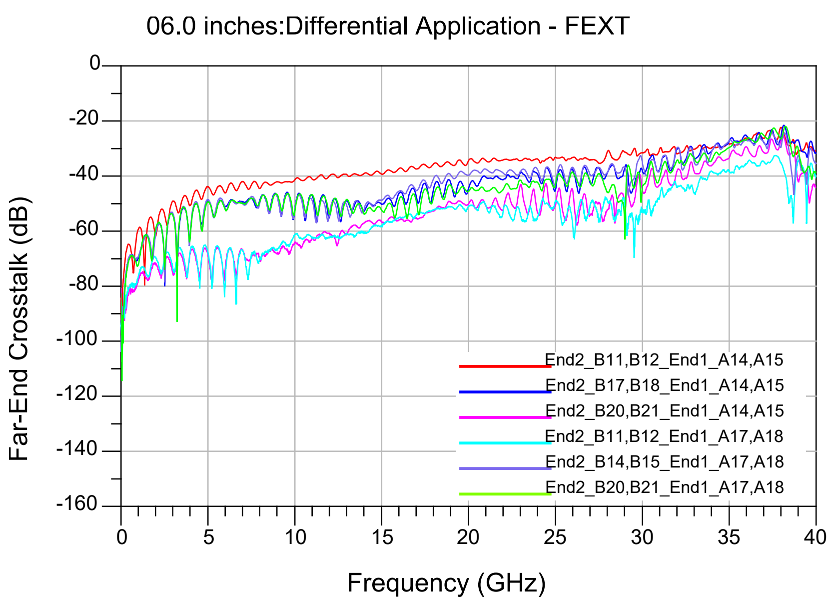

Figure 19

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

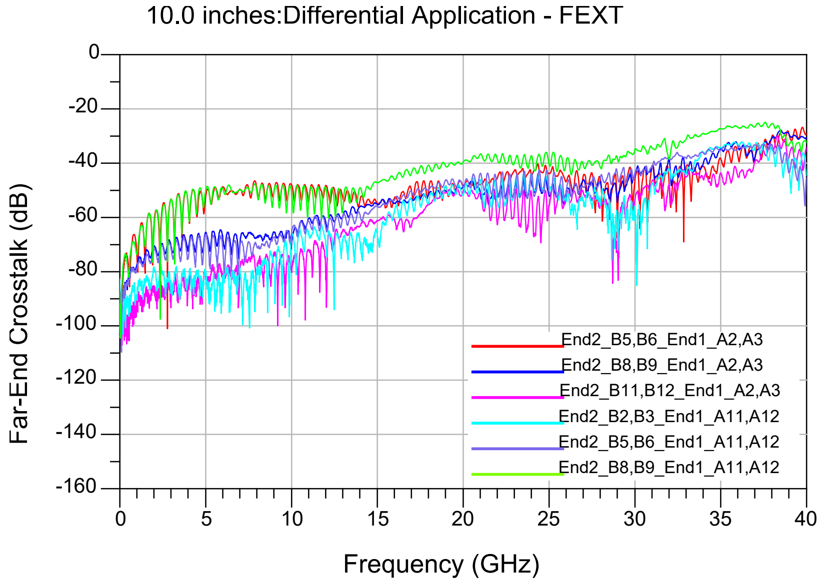

Figure 20

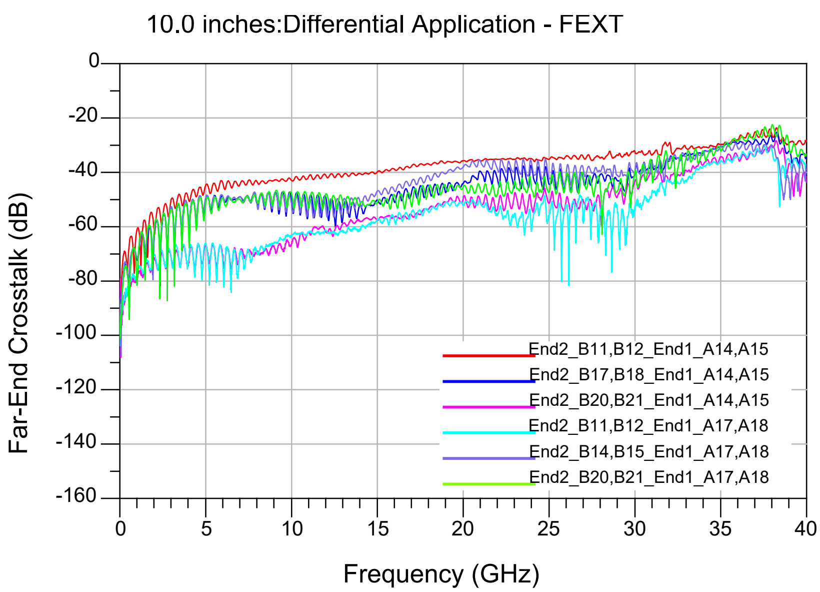

Figure 21

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

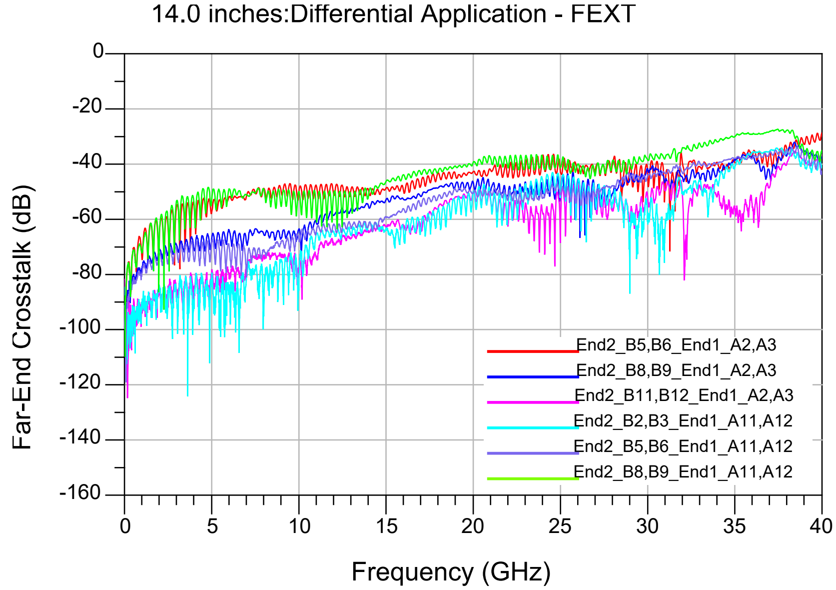

Figure 22

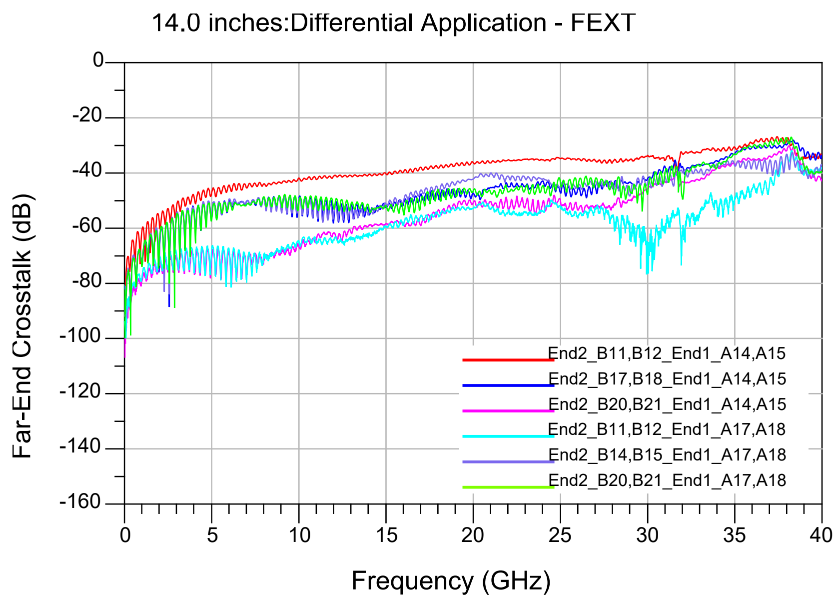

Figure 23

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Differential Application – Differential to Common Mode Conversion

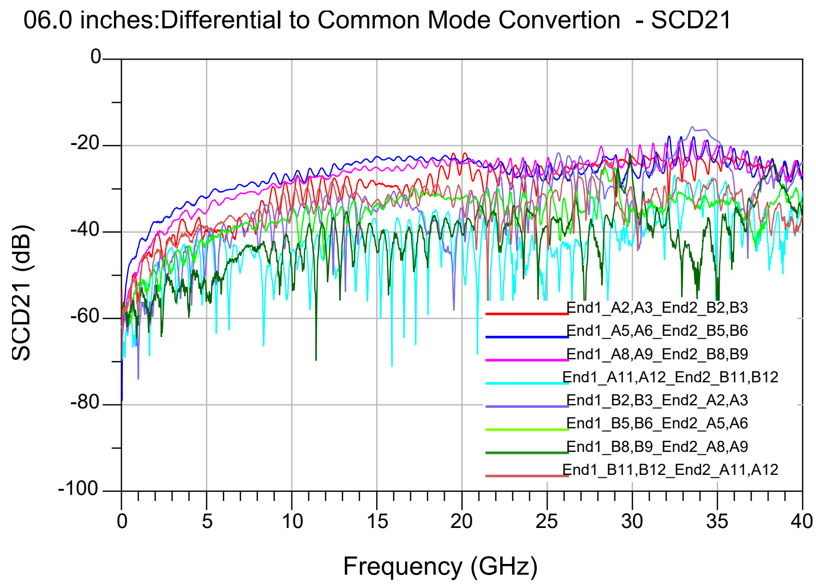

Figure 24

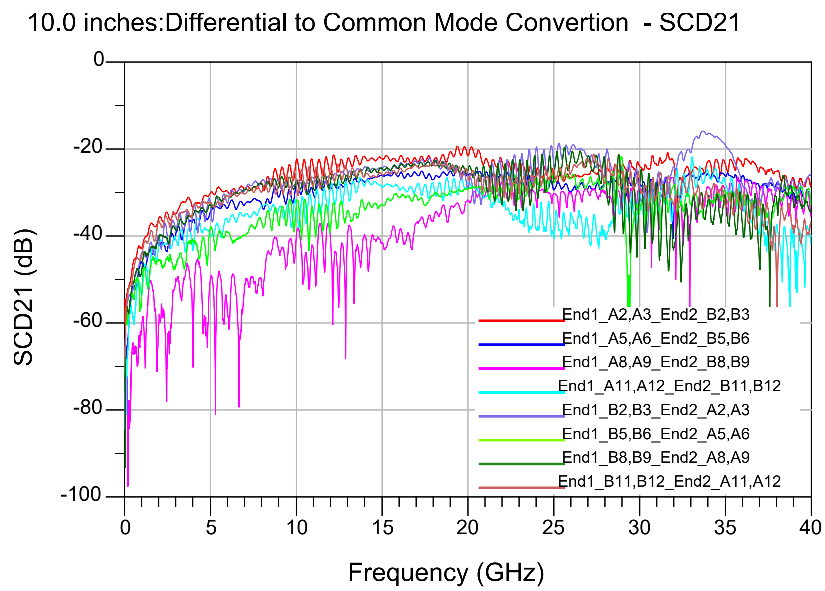

Figure 25

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

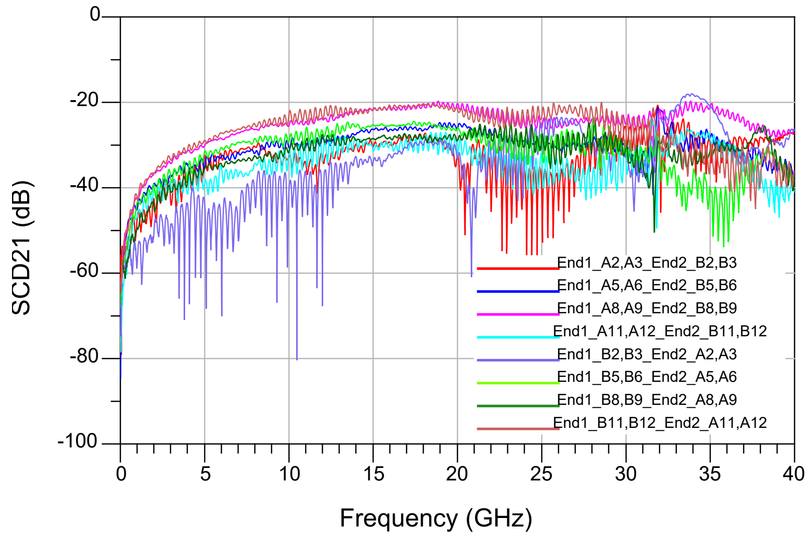

Figure 26

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Appendix B – Time Domain Responses

Differential Application – Input Pulse

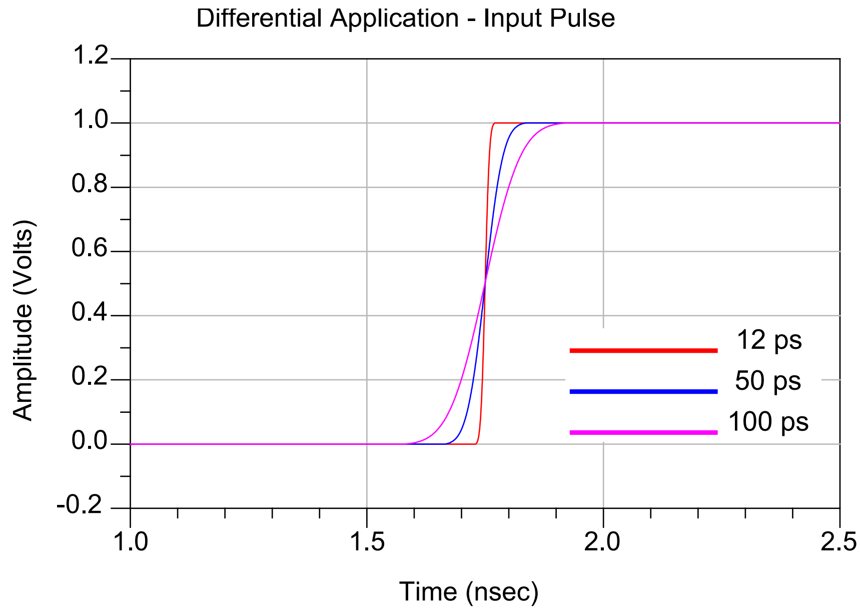

Figure 27

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Differential Application – Cable assembly Impedance

CPC-16-1-06.0-2-02-L-2

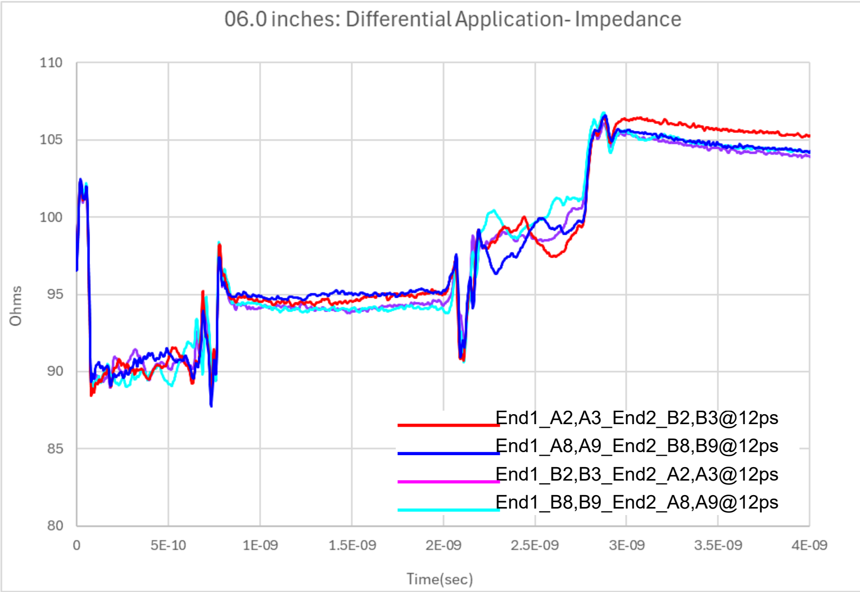

Figure 28

CPC-16-1-06.0-2-02-L-2

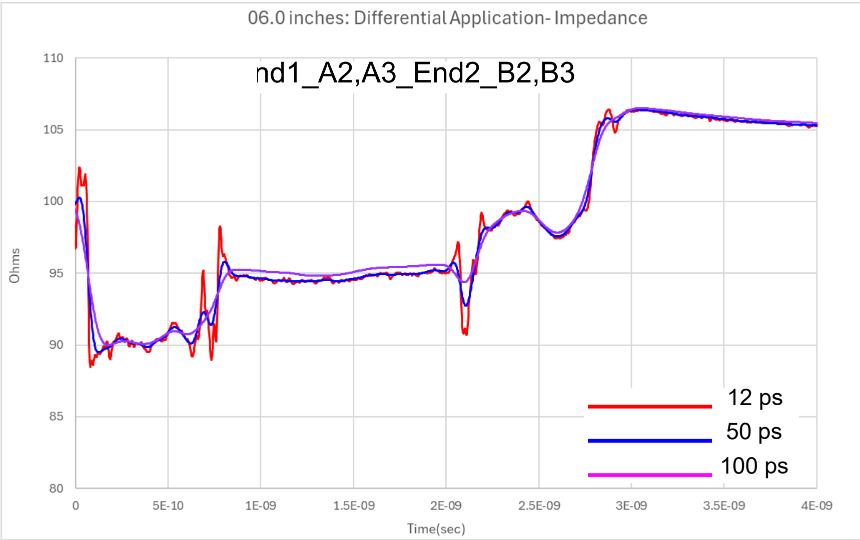

Figure 29

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

CPC-16-1-06.0-2-02-L-2

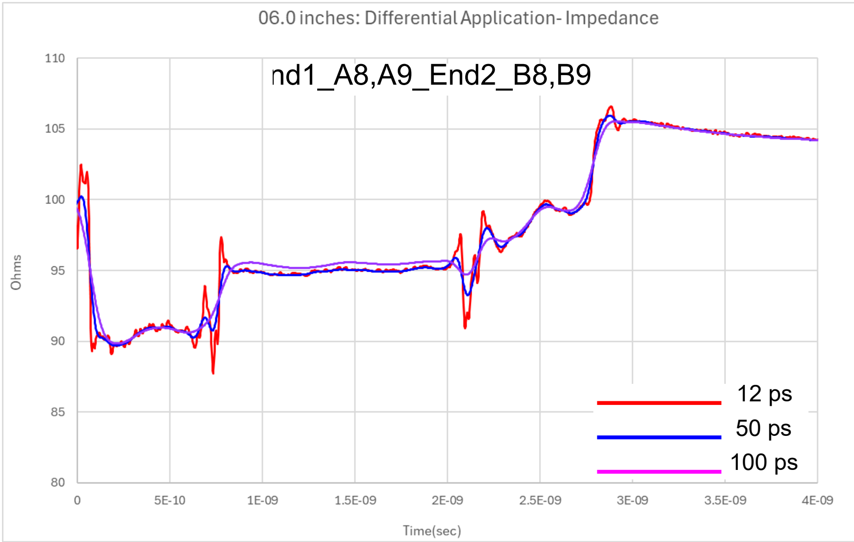

Figure 30

CPC-16-1-06.0-2-02-L-2

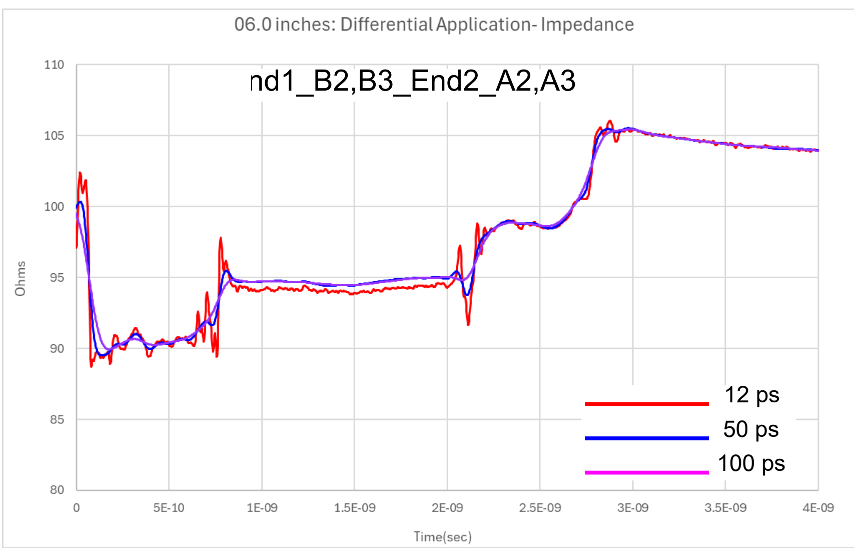

Figure 31

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

CPC-16-1-06.0-2-02-L-2

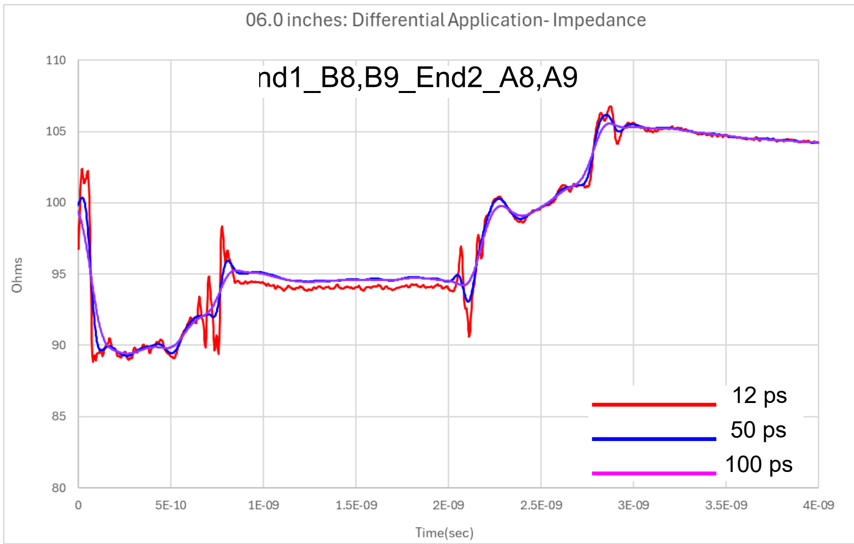

Figure 32

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Differential Application – Propagation Delay

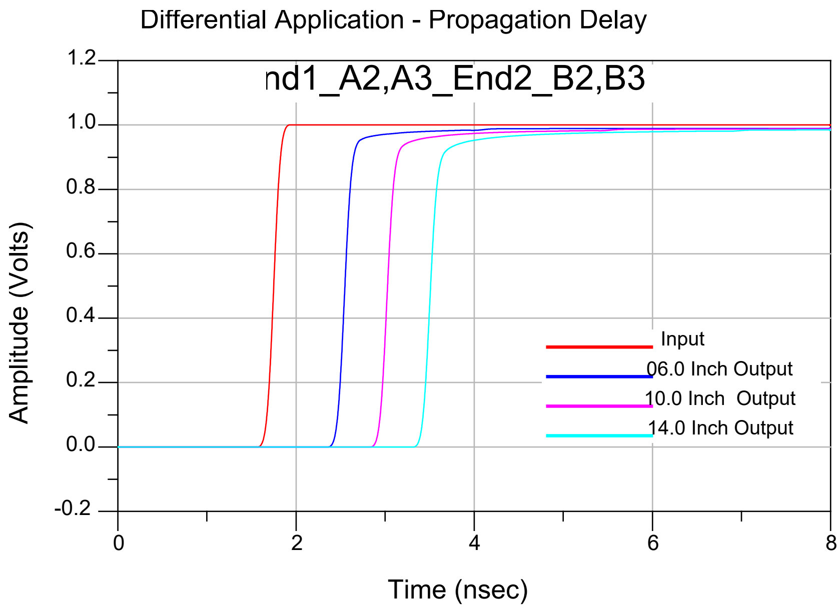

Figure 33

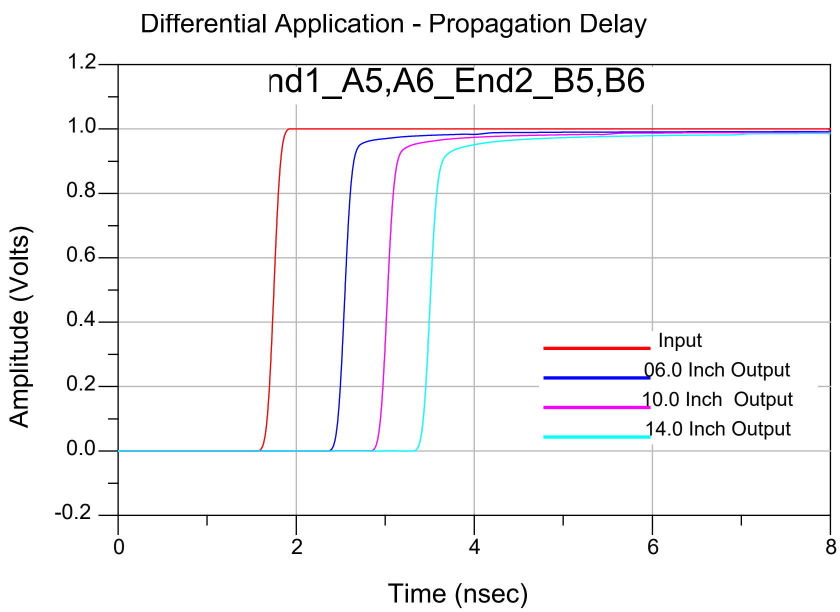

Figure 34

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

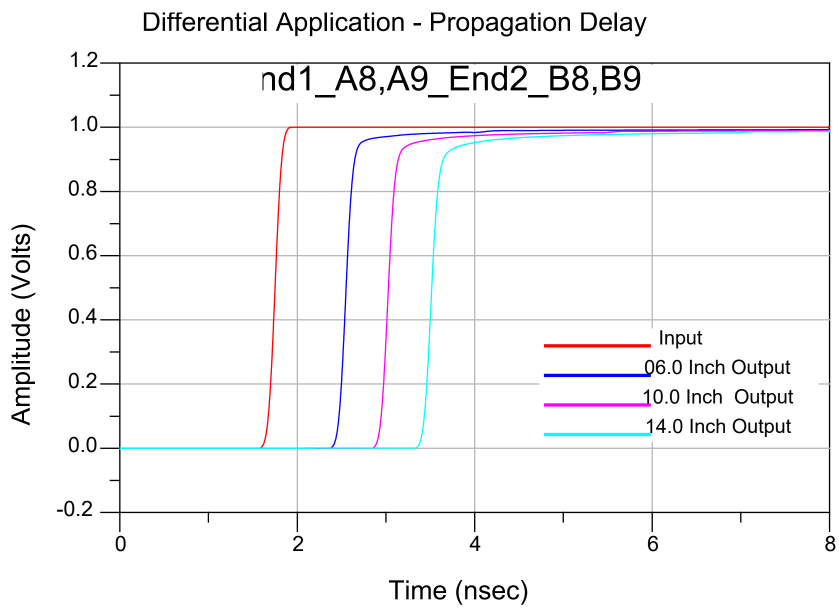

Figure 35

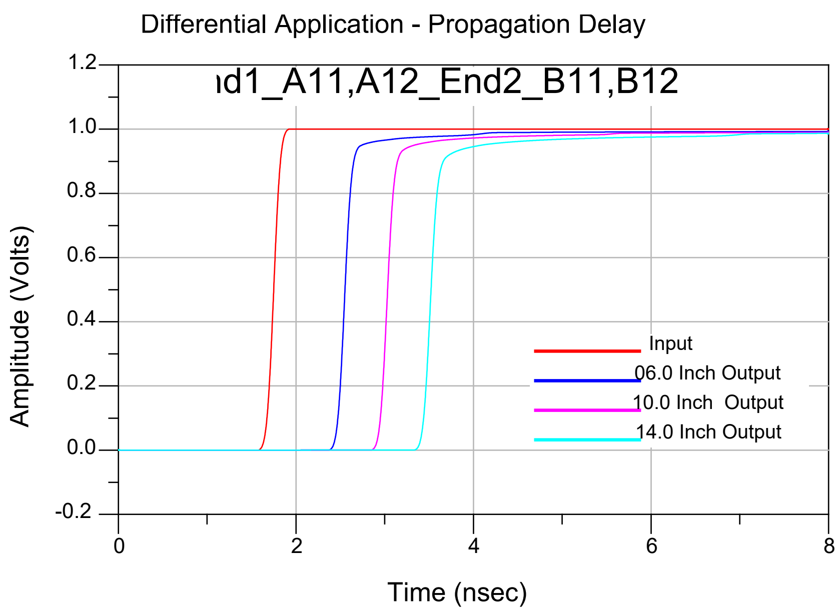

Figure 36

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

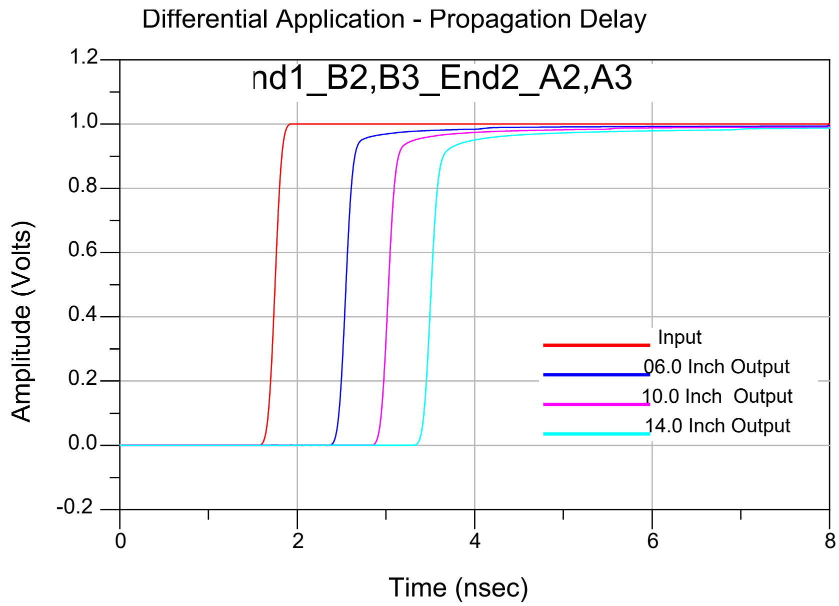

Figure 37

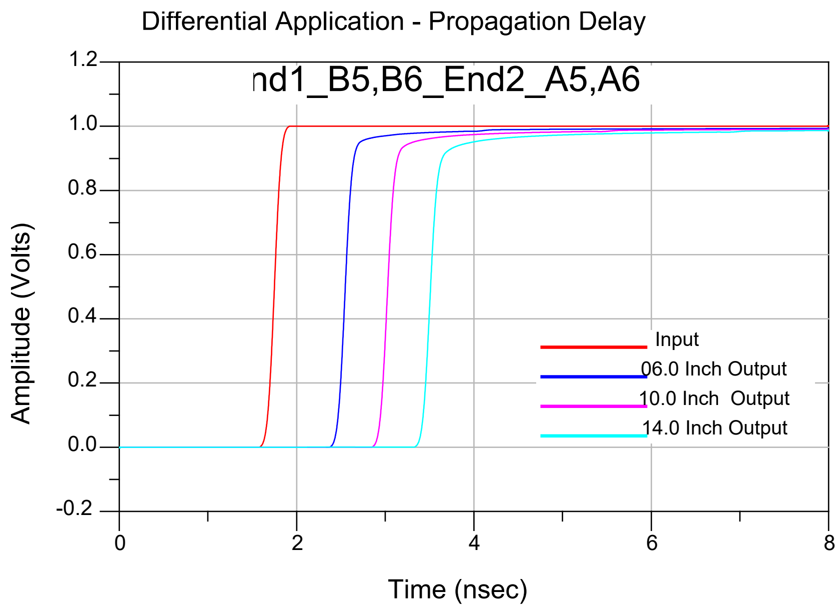

Figure 38

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

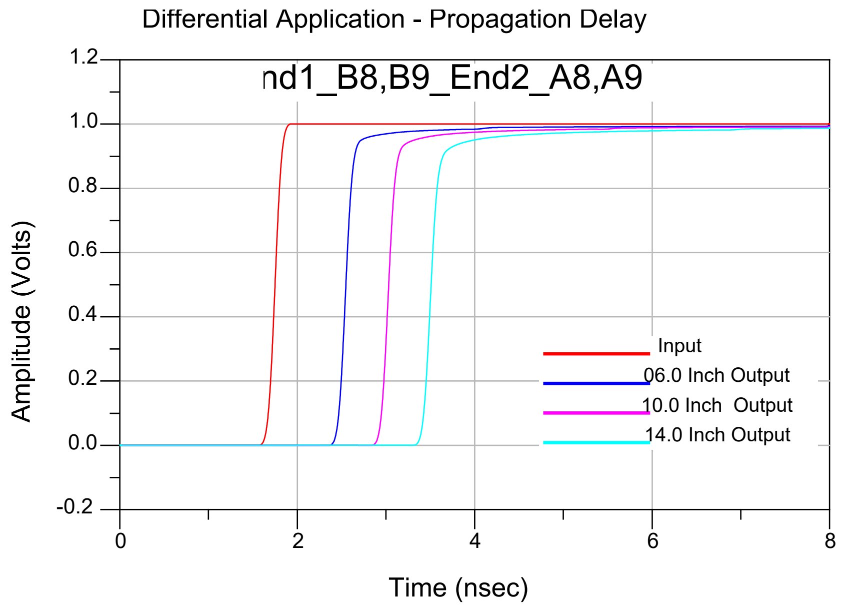

Figure 39

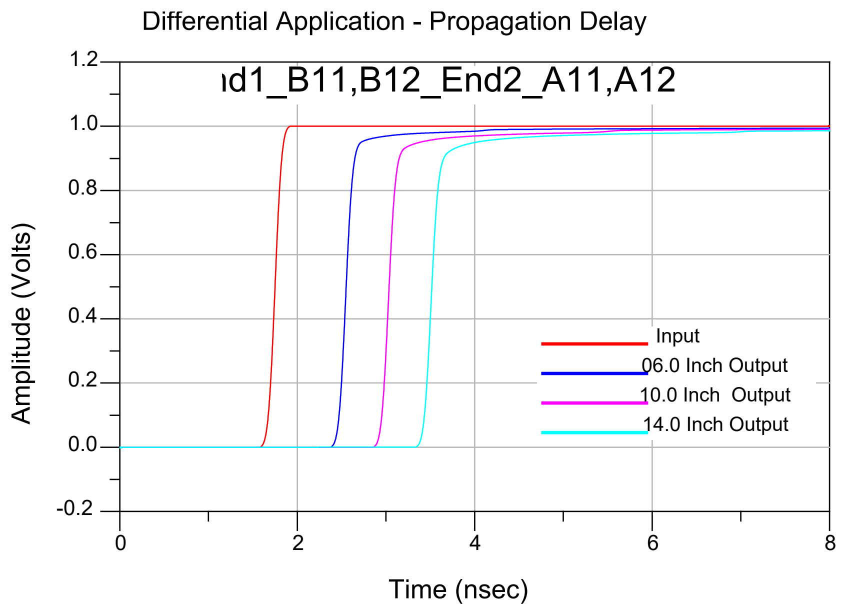

Figure 40

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Appendix C – Product and Test System Descriptions

Product Description

Product test samples are CPC Cable Assemblies. The part numbers are CPC-16-1-06.0-2-02-L-2, CPC-16-1-10.0-2-02-L-2 and CPC-16-1-14.0-2-02-L-2. These assemblies mate with CPI-16-01-2-S-RA-0-L-XR. A photo of the mated test article mounted to SI test boards is shown in this appendix.

The cable assembly terminations had a particular signal line configuration. The respective signal line numbers are shown in table 3 below. There are a total of 8 pairs per row. 2.4mm jack numbers on the test boards correspond to the assembly line numbers. All adjacent lines are terminated where applicable.

SIGNAL MAPPING FOR -2					
END 1	**TYPE**	**END 2**	**END 1**	**TYPE**	**END 2**
A1	GND 1	B1	B1	GND 2	A1
A2	PAIR 1	B2	B2	PAIR 9	A2
A3		B3	B3		A3
A4	GND 1	B4	B4	GND 2	A4
A5	PAIR 2	B5	B5	PAIR 10	A5
A6		B6	B6		A6
A7	GND 1	B7	B7	GND 2	A7
A8	PAIR 3	B8	B8	PAIR 11	A8
A9		B9	B9		A9
A10	GND 1	B10	B10	GND 2	A10
A11	PAIR 4	B11	B11	PAIR 12	A11
A12		B12	B12		A12
A13	GND 1	B13	B13	GND 2	A13
A14	PAIR 5	B14	B14	PAIR 13	A14
A15		B15	B15		A15
A16	GND 1	B16	B16	GND 2	A16
A17	PAIR 6	B17	B17	PAIR 14	A17
A18		B18	B18		A18
A19	GND 1	B19	B19	GND 2	A19
A20	PAIR 7	B20	B20	PAIR 15	A20
A21		B21	B21		A21
A22	GND 1	B22	B22	GND 2	A22
A23	PAIR 8	B23	B23	PAIR 16	A23
A24		B24	B24		A24
A25	GND 1	B25	B25	GND 2	A25

Table 3: Respective signal line numbers

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Test System Description

The test fixtures are composed of twelve-layer Tachyon 100G material with 46.25Ω signal trace and pad configurations designed for the electrical characterization of Samtec high speed connector products. A PCB mount 2.4mm connector is used to interface the PNA test cables to the test fixtures. Optimization of the 2.4mm launch was performed using full wave simulation tools to minimize reflections. The test fixtures and calibration kit are specific to the CPI series connector set and identified by part number PCB-CPX-111653-SIG-0. Displayed on the following pages is information for the CPI/AFR calibration structure and directives for mating CPC fixtures.

PCB-CPX-111653-SIG-0 Test Fixtures

Figure 41

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

PCB Fixtures

The test fixtures used are as follows:

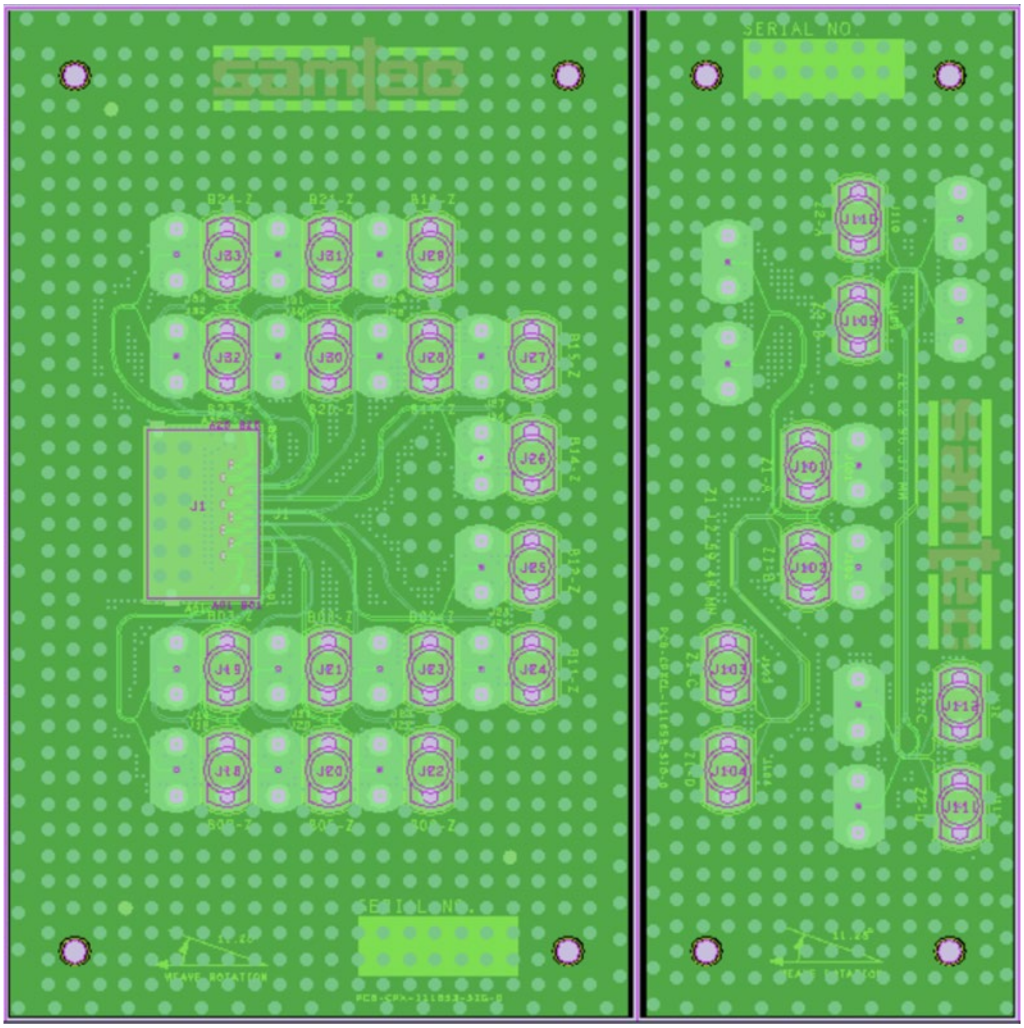

Figure 42

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Appendix D – Test and Measurement Setup

For frequency domain measurements, the test instrument is the Keysight N5225B PNA-L network analyzer. Frequency domain data are obtained directly from the instrument and figures are generated by Keysight ADS. The network analyzer is configured as follows:

Start Frequency – 10 MHz
Stop Frequency – 40 GHz
Number of points – 4000
IFBW – 1 KHz

N5225B Measurement Setup

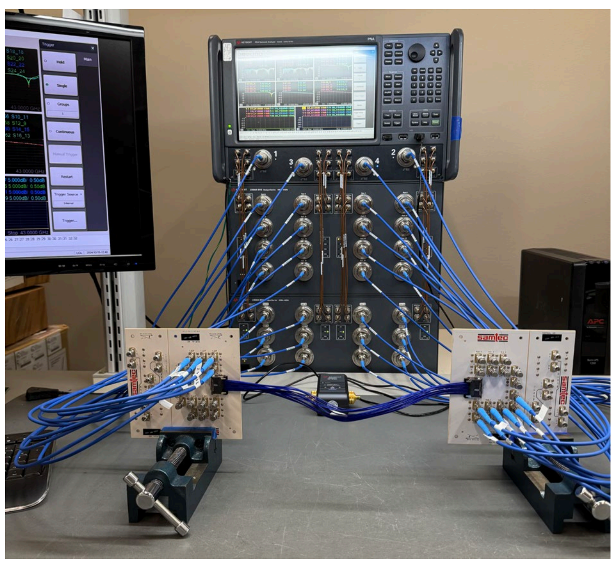

Figure 43

Test Instruments

QTY	Description
1	Keysight N5225B PNA Network Analyzer
1	2.4 mm 85056D

Test Cables & Adapters

QTY	Description
32	1m Gore 1.85mm male to female test cables

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

For impedance measurements, the test instrument is the Keysight DCA-X86100D Wide-Bandwidth Oscilloscope Mainframe. The impedance data and profiles are obtained directly from the instrument. The Digital Analyzer is configured as follows:

Vertical Scale: 5 ohm / Div
Horizontal Resolution: 2.5ps
Averages: 128

DCA-X86100D Measurement Setup

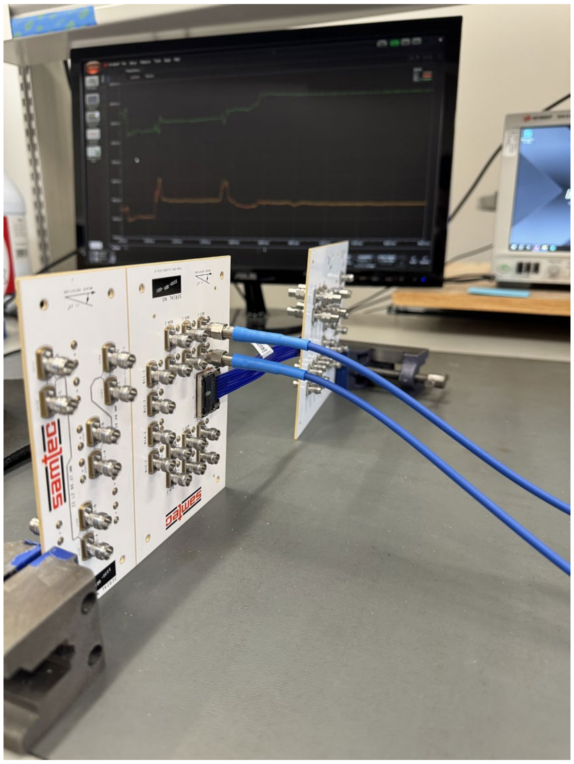

Figure 44

Test Instruments

QTY	Description
1	Keysight DCA-X86100D Wide-Bandwidth Oscilloscope Mainframe

Test Cables & Adapters

QTY	Description
4	Junkosha J12J103834-00

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System, 16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Appendix E - Frequency and Time Domain Measurements

Frequency (S-Parameter) Domain Procedures

The quality of any data taken with a network analyzer is directly related to the quality of the calibration standards and the use of proper test procedures. For this reason, extreme care is taken in the design of the AFR calibration standards, the SI test boards and the selection of the PCB vendor.

A coaxial SOLT calibration is performed using 85056D MCAL module. Then DUT measurements are performed under SOLT calibration. The measurements include the effect of test fixture. The measurements of the 2X THRU line standards are required to remove the test fixture effect.

Time Domain Procedures

Mathematically, Frequency Domain data can be transformed to obtain a Time Domain response. Perfect transformation requires Frequency Domain data from DC to infinity Hz. Fortunately, a very accurate Time Domain response can be obtained with bandwidth-limited data, such as measured with modern network analyzer.

The Time Domain responses were generated using Keysight ADS 2023. This tool has a transient convolution simulator, which can generate a Time Domain response directly from measured S-Parameters. An example of a similar methodology is provided in the Samtec Technical Note on domain transformation.
http://www.samtec.com/Documents/WebFiles/Technical_Library/Reference/Articles/tech-note_using-PLTS-for-time-domain-data_web.pdf

Propagation Delay (TDT)

The Propagation Delay is a measure of the Time Domain delay through the cable assembly and footprint. A step pulse is applied to the touchstone model of the cable assembly and the transmitted voltage is monitored. The same pulse is also applied to a reference channel with zero loss, and the Time Domain pulses are plotted on the same figure. The difference in time, measured at the 50% point of the step voltage is the propagation delay.

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Impedance (TDR)

Measurements involving digital pulses are performed using either Time Domain Reflectometer (TDR) or Time Domain Transmission (TDT) methods. The TDR method is used for the impedance measurements in this report.

The signal line(s) of the SUT's is energized with a TDR pulse and the far-end of the energized signal line is terminated in the test systems characteristic impedance (e.g.; 50Ω or 100Ω terminations). By terminating the adjacent signal lines in the test systems characteristic impedance, the effects on the resultant impedance shape of the waveform are limited.

Series: CPC
Description: Copper Si-Fly® LP Low-Profile, High-Density Cable System,
16-Pair, 34AWG 92-ohm Twinax Cable, Pin A1 to B1 Pinout

Appendix F – Glossary of Terms

ADS – Keysight Advanced Design System
AFR – Automatic Fixture Removal
PCB – Printed Circuit Board
SUT – System Under Test
SOLT – acronym used to define Short, Open, Load & Thru Calibration Standards
TDR – Time Domain Reflectometry
TDT – Time Domain Transmission