Comparison of Electrical Characteristics of Meritec's Road Runner and Teradyne's VHDM-RAMâ Single-ended 50 ohm Co-planer Connectors

Test 201/219

VHDMâ is a registered trademark of Teradyne Inc.

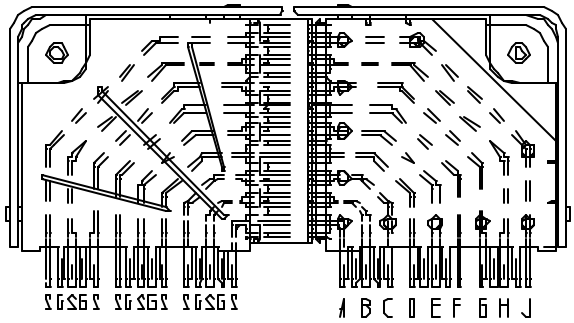
Multi-line NEXT and FEXT

Measurement Methods for Road Runner:

The crosstalk contributed by each of eight active lines was measured on the quiet line that they surround and the absolute values were added together:

A	A	A
A	Q	A
A	A	A

The FEXT and NEXT was measured on the second and third longest and shortest signal paths – pins B,C,G and H.



Pinout of connector:

(shortest signal path)

A	A	A
B	**B**	B
C	**C**	C
D	D	D
E	E	E
F	F	F
G	**G**	G
H	**H**	H
J	J	J

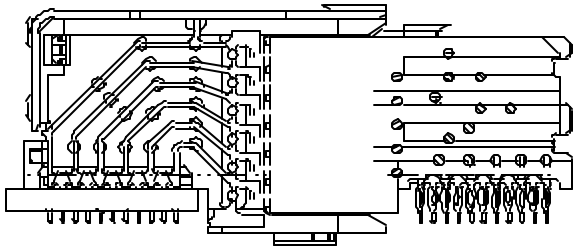
(longest signal path)

Measurement Methods for VHDM-RAM:

The crosstalk contributed by each of ten active lines was measured on the quiet line that they surround and the absolute values were added together:

	A	A	A	
A	A	Q	A	A
	A	A	A	

The FEXT and NEXT was measured on all six signal paths:



Pinout of connector:

(shortest signal path)

A	**A**	A
B	**B**	B
C	**C**	C
D	**D**	D
E	**E**	E
F	**F**	F

(longest signal path)

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Test Equipment for Road Runner:
Tektronix CSA-803/SD-24, TDR Signal Analyzer
Avtech AVP-AV, 6 channel, bipolar Pulse Generator
Two Meritec Test PC Boards (#601001) with 50 ohm traces approx. 4 inches long

Results:

	Backward Crosstalk (NEXT) (%)			
	Roadrunner	VHDM-RAM	Road Runner	VHDM-RAM
Risetime	90ps (10-90%)	Raw	275ps (10-90%)	300ps(10-90%)
Row				
A		7.7		5.1
B	9.7	7.7	5.1	6.3
C	10.0	7.7	6.0	6.0
D		8.0		5.8
E		8.9		6.2
F		9.6		5.1
G	9.5	na	5.8	na
H	9.2	na	5.1	na
J		na		na

(VHDM Right Angle Male Connector data as published on Teradyne website as of 9/19/02
Assumption: Raw = risetime of TDR and intervening signal path, the actual value was not stated)
The Road Runner NEXT is comparable to VHDM-RAM at 300ps risetime

Forward Crosstalk (FEXT) (%)			
	Roadrunner	Road Runner	VHDM-RAM
Risetime	90ps (10-90%)	275ps (10-90%)	300ps(10-90%)
Row			
A			-5.3
B	9.7	5.1	-5.6
C	10.0	6.0	-5.2
D			-4.8
E			-5.6
F			-4.9
G	9.5	5.8	na
H	9.2	5.1	na
J			na

(VHDM-RAM Connector data as published on Teradyne website as of 10/23/02)

The Road Runner FEXT is comparable to VHDM-RAM at 300ps risetime

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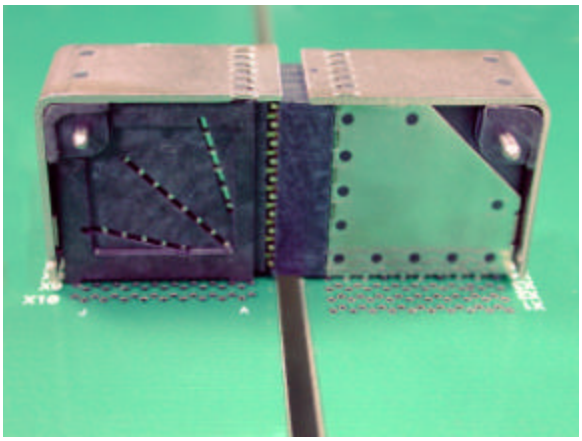
Top View of Crosstalk Test Setup - Road Runner



Closeup of Road Runner Connector

Propagation Delay

	Propagation Delay (ps)	Propagation Delay (ps)
Row	Road Runner	VHDM-RAM
A	96	257
B		271
C		313
D		350
E	274	385
F		437
G		na
H		na
J	426	na

(VHDM-RAM Connector data as published on Teradyne website as of 9/19/02

The Road Runner product features shorter electrical path lengths than VHDM-RAM even though there are more signal paths.

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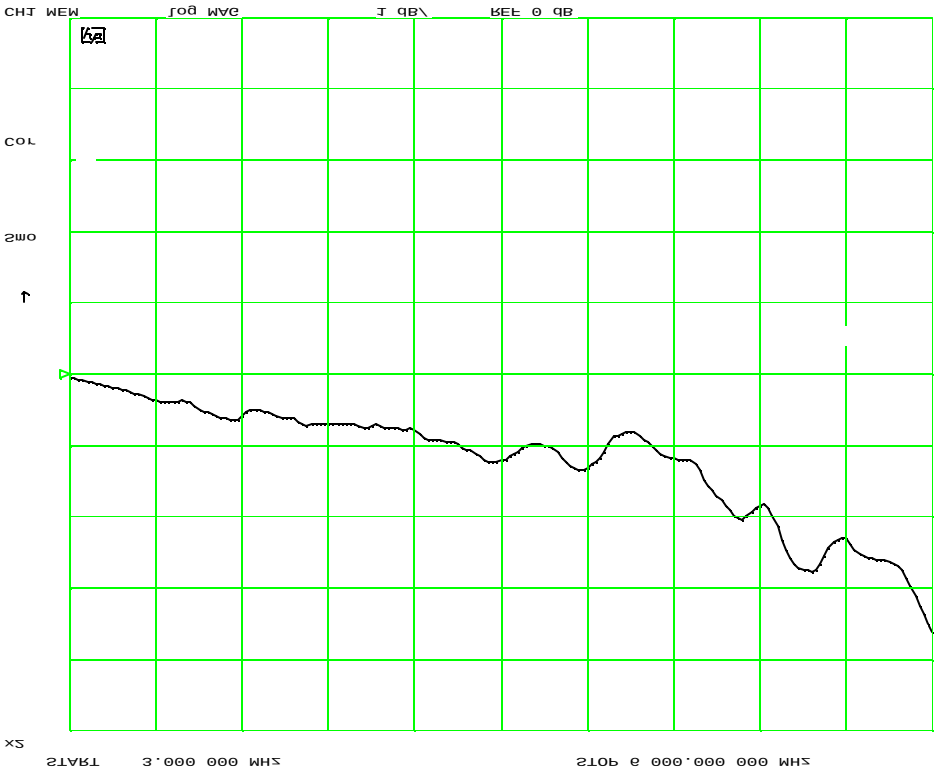
Additional Road Runner Data

Attenuation (S_{21})
This trace represents the transmission characteristics of Road Runner (S_{21}). Measurement was done using 5% smoothing of the waveform. The vertical scale is 1 dB/div. The horizontal scale is 600 Mhz/div. Frequency sweep – 3Mhz to 6 Ghz.



Road Runner pin F

Road Runner Contact Resistance vs. Mate/Unmate Cycles
After 50 insertion/withdrawals of one wafer, all contacts decreased in resistance over a range of -0.2 to -2.4 milliohms

J F Sawdy
combined 10/23/02

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