

July 29,1999

John Lohmeyer
Chairman, T10
4420 Arrows West Drive
Colorado Springs, CO 80907-3444



Subject: Passive Lumped Capacitance Compensation on SCSI Signal Lines

Dear Mr. Lohmeyer:

This is another shot at simulation of LVD SCSI bus environment consisting of an initiator, 1, 3, 6, and 12 m cable, and a differential backplane at speeds of 160 and 320 Mtransfers/second. With a wide bus and double clocking, this would transform into 640 and 1280 MB/sec speed on the SCSI bus consecutively.

Our criteria have changed as compared to our last presentation at the meeting in Harrisburg in March 1999 as follows:

- 1) Use 1" stub for 160 Mt/sec speed and .75" stub for 320Mt/sec speed.
- 2) Drive the backplane from a host adapter (HA) with a cable length stepping through 1, 3, 6, and 12 meters.
- 3) Introduce a cable with more realistic losses.

We used 30 AWG twisted pair lossy cable model at variable lengths and lossy backplanes for the simulation. We ran the simulations on one differential pair and did not consider any crosstalk.

In my presentation at the July meeting, I quickly showed slides from the March meeting as an introduction. I made a false statement that these simulations were done with a 3 m cable between the HA and the backplane. This was wrong and somebody correctly pointed this out. Our cable model for the March presentation was so lossy that we could not use it.

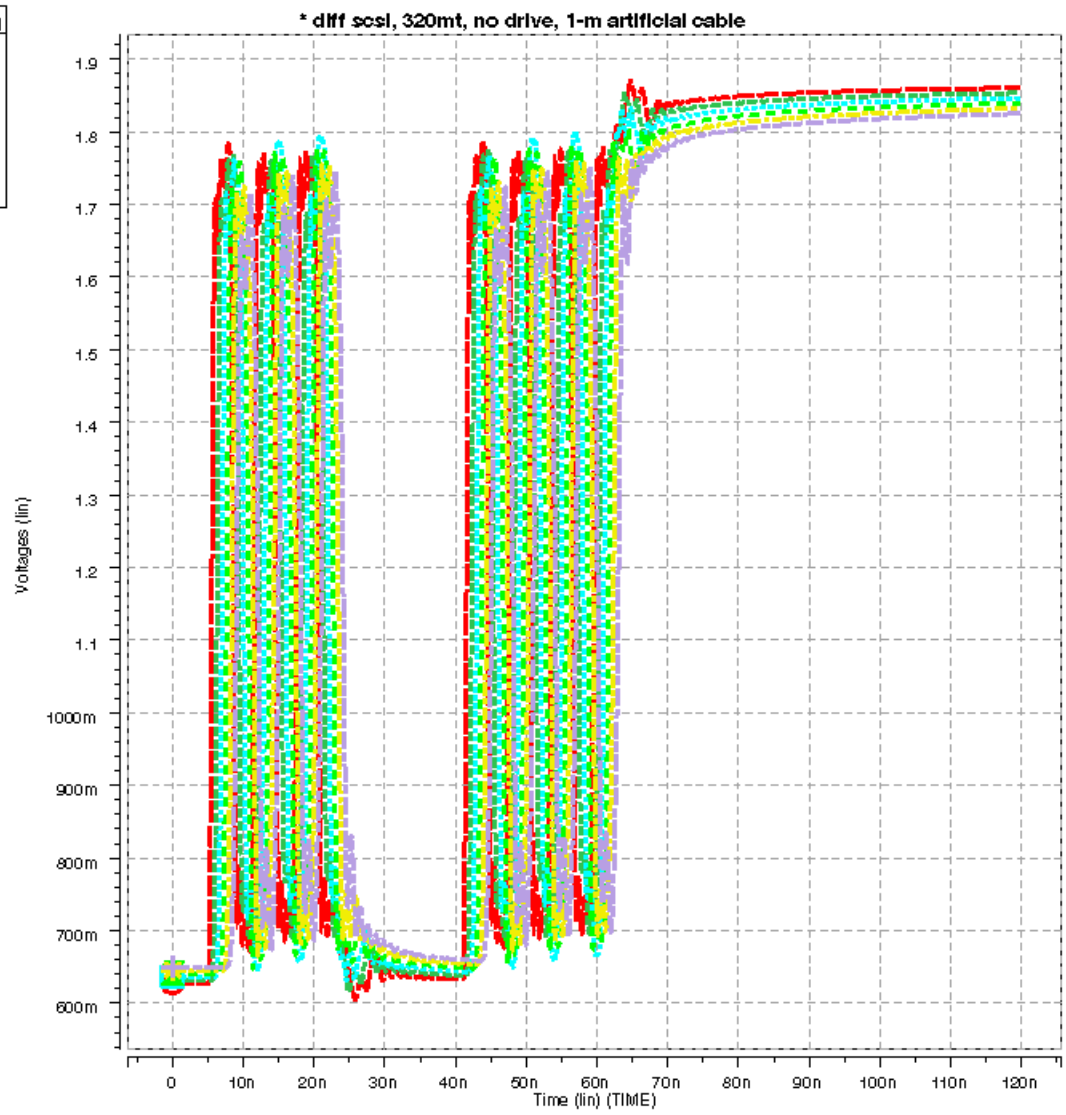
The simulations with pictures in the attachment were done with an improved cable model giving us quite realistic waveforms on a compensated backplane. The first four pictures show a backplane with no load, the following 8 pictures show waveforms on a backplane loaded with 12 drives 1.5" apart.

The waveforms are acceptable with the exception of a 12 m cable where the losses reduced the amplitude to 300 mV pk-pk and the ISI pushed the waveforms below the 1.2V mark.

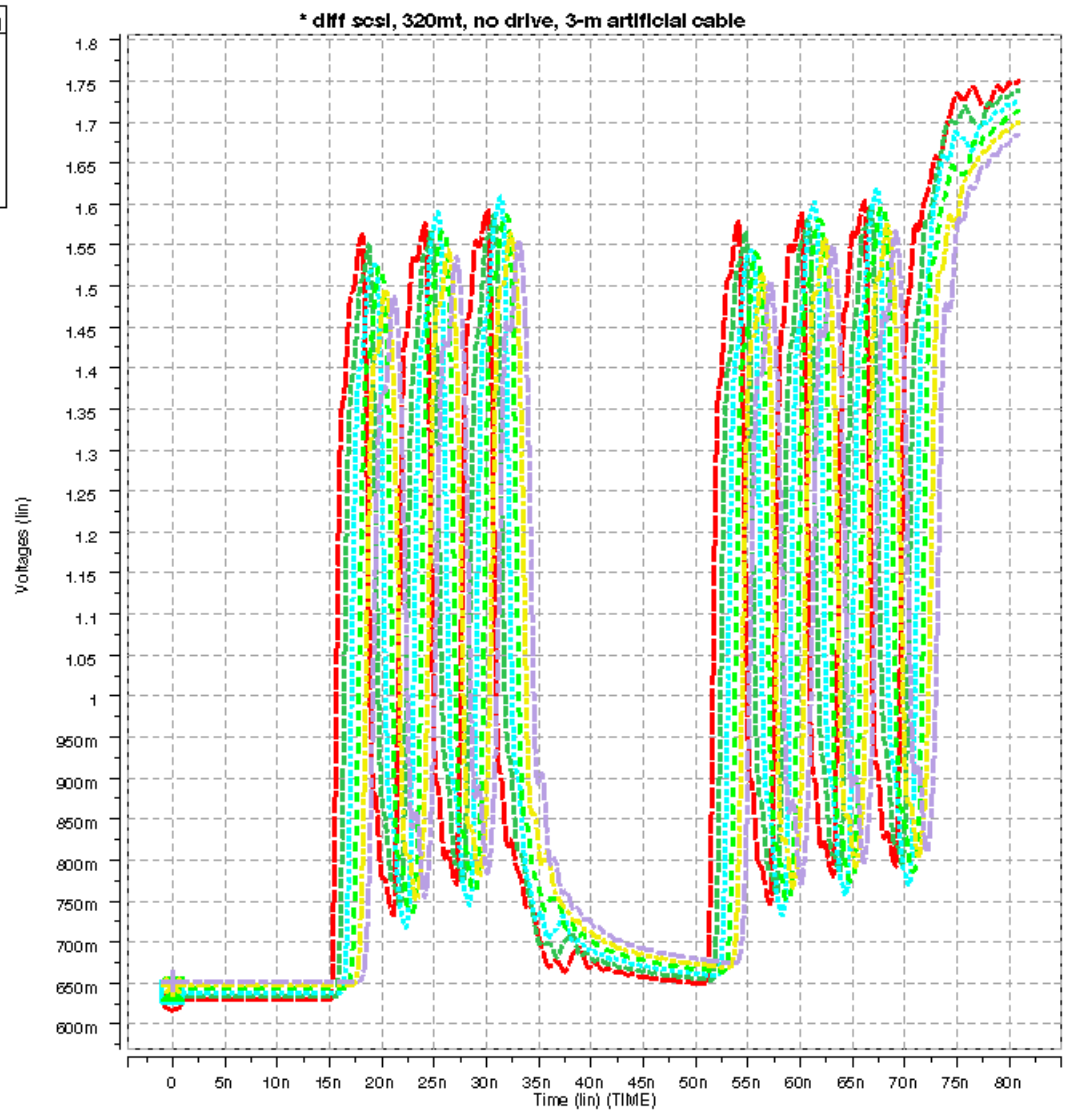
Sincerely,

Vit F. Novak
Sun Microsystems

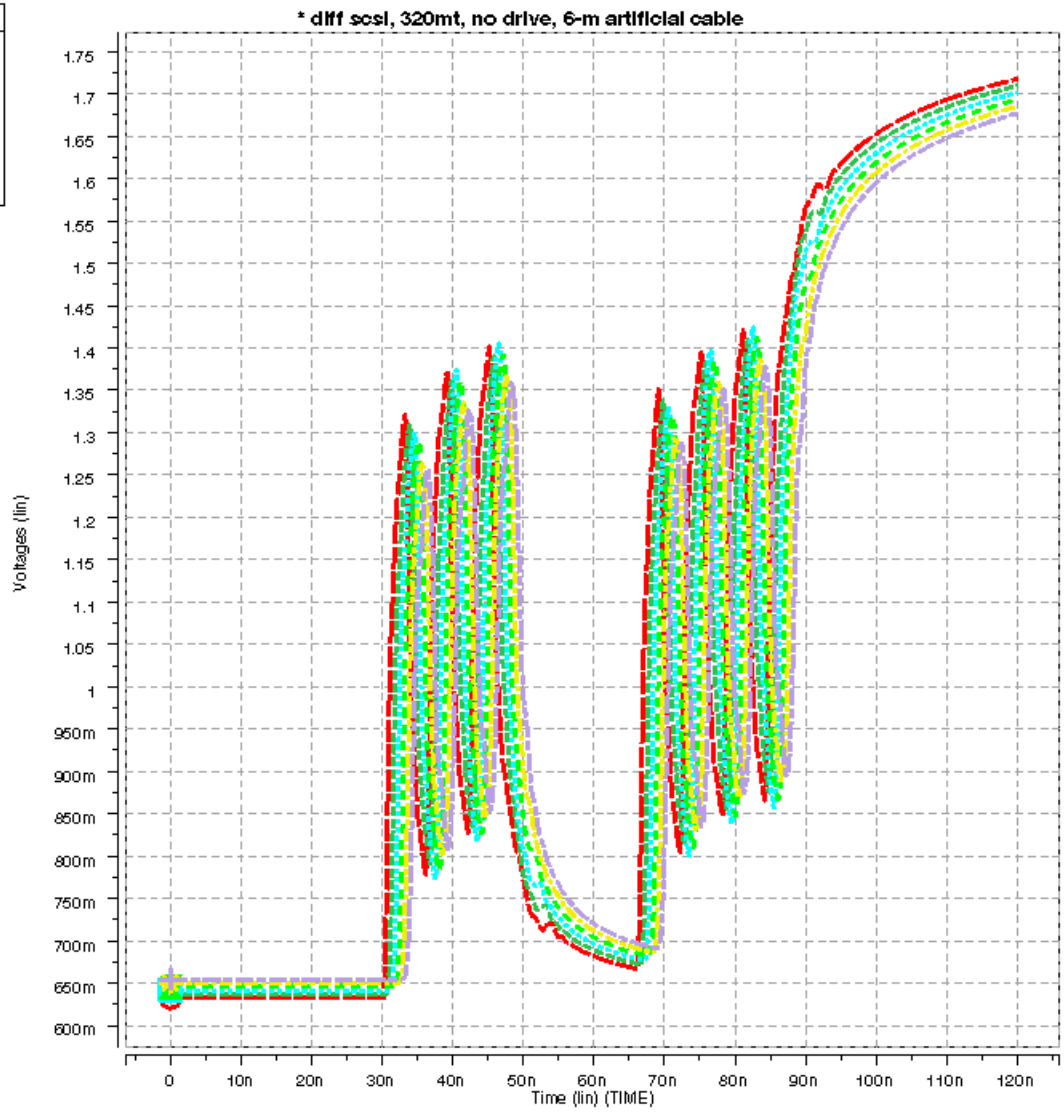
Wave	Symbol
D0:A0:v(111)	○
D0:A0:v(313)	△
D0:A0:v(513)	□
D0:A0:v(713)	×
D0:A0:v(913)	*
D0:A0:v(1113)	+



Wave	Symbol
D0:A0:v(1+1)	○
D0:A0:v(3+3)	△
D0:A0:v(5+3)	□
D0:A0:v(7+3)	×
D0:A0:v(9+3)	*
D0:A0:v(11+3)	+

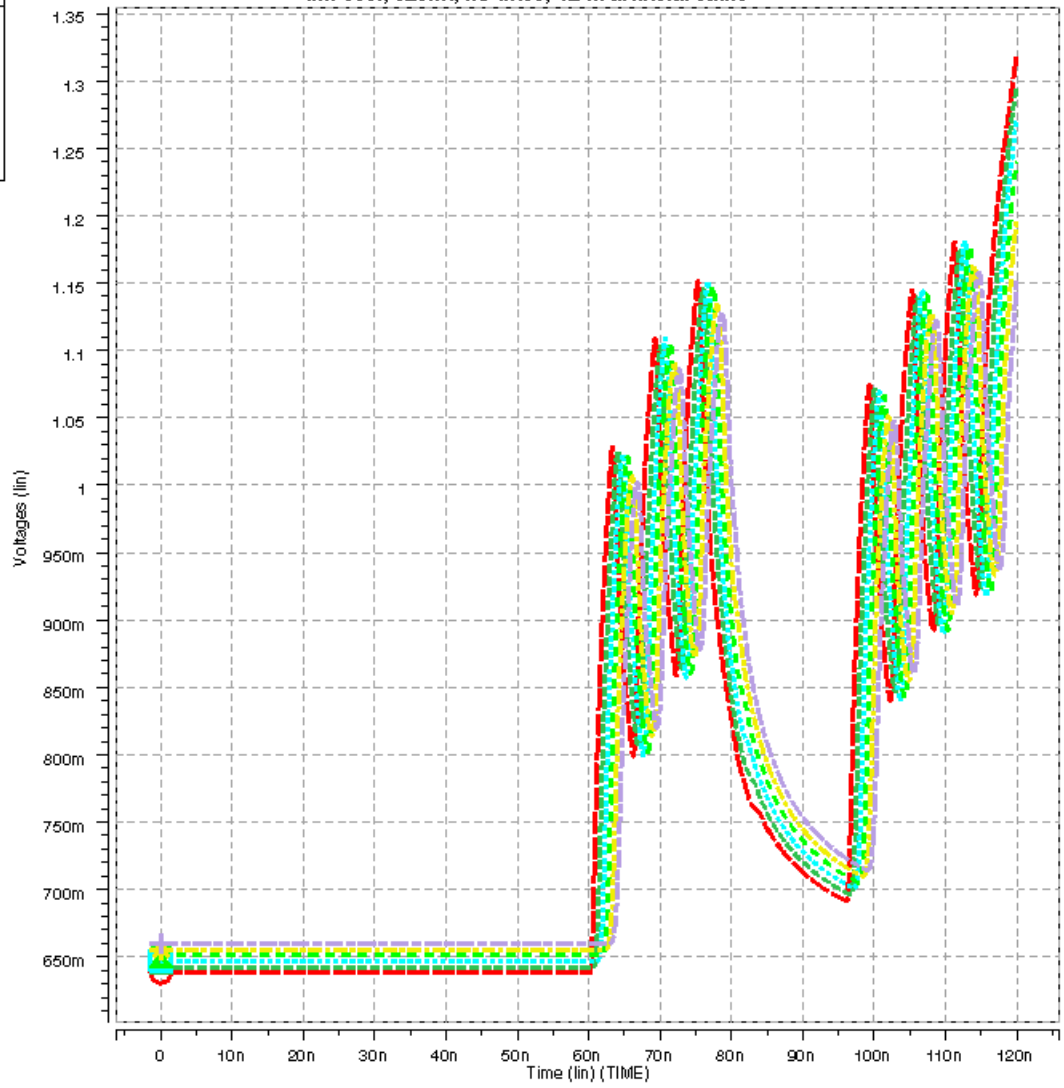


Wave	Symbol
D0:A0:v(111)	○
D0:A0:v(313)	△
D0:A0:v(513)	□
D0:A0:v(713)	×
D0:A0:v(913)	*
D0:A0:v(1113)	+

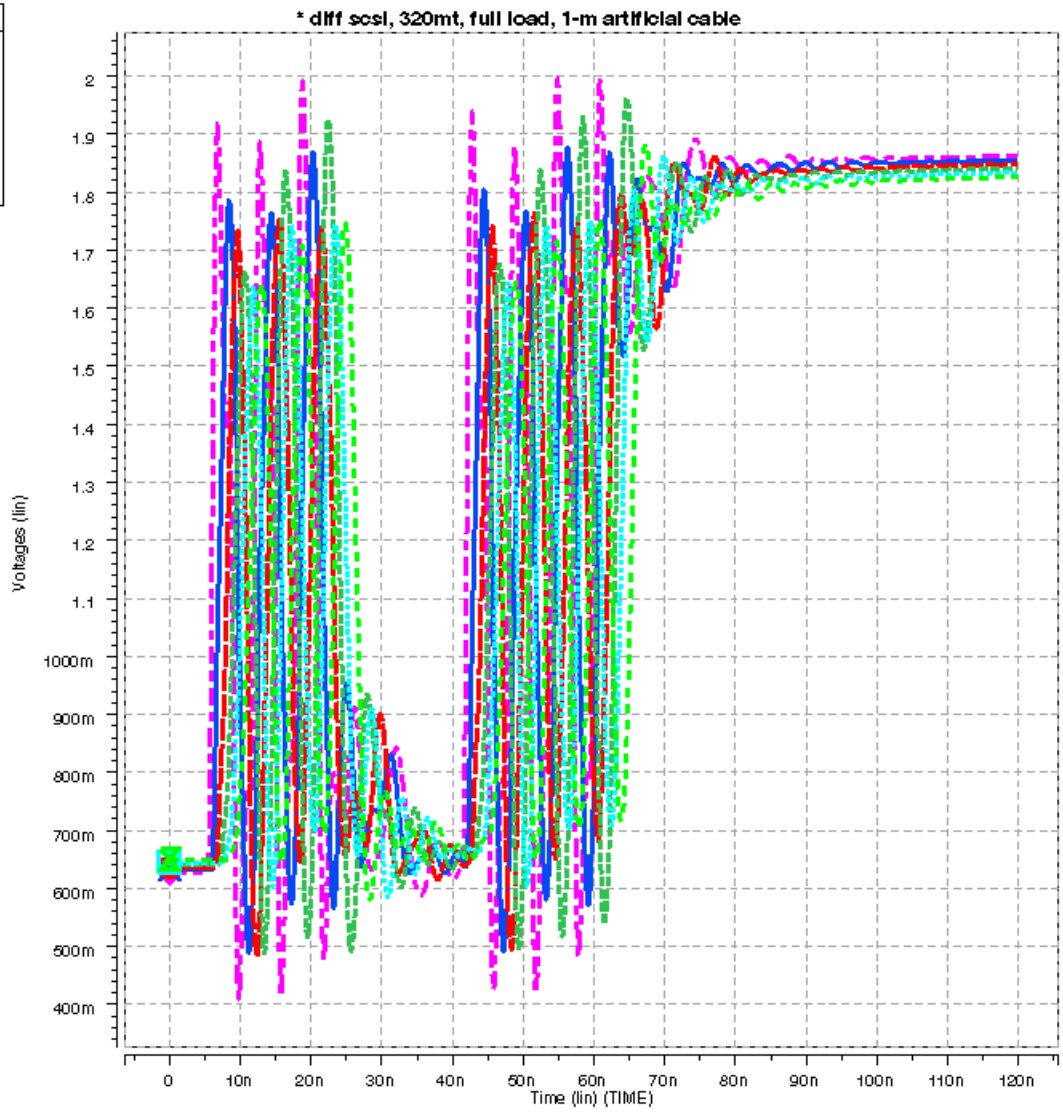


Wave	Symbol
D0:A0:v(111)	○
D0:A0:v(313)	△
D0:A0:v(513)	□
D0:A0:v(713)	×
D0:A0:v(913)	*
D0:A0:v(1113)	+

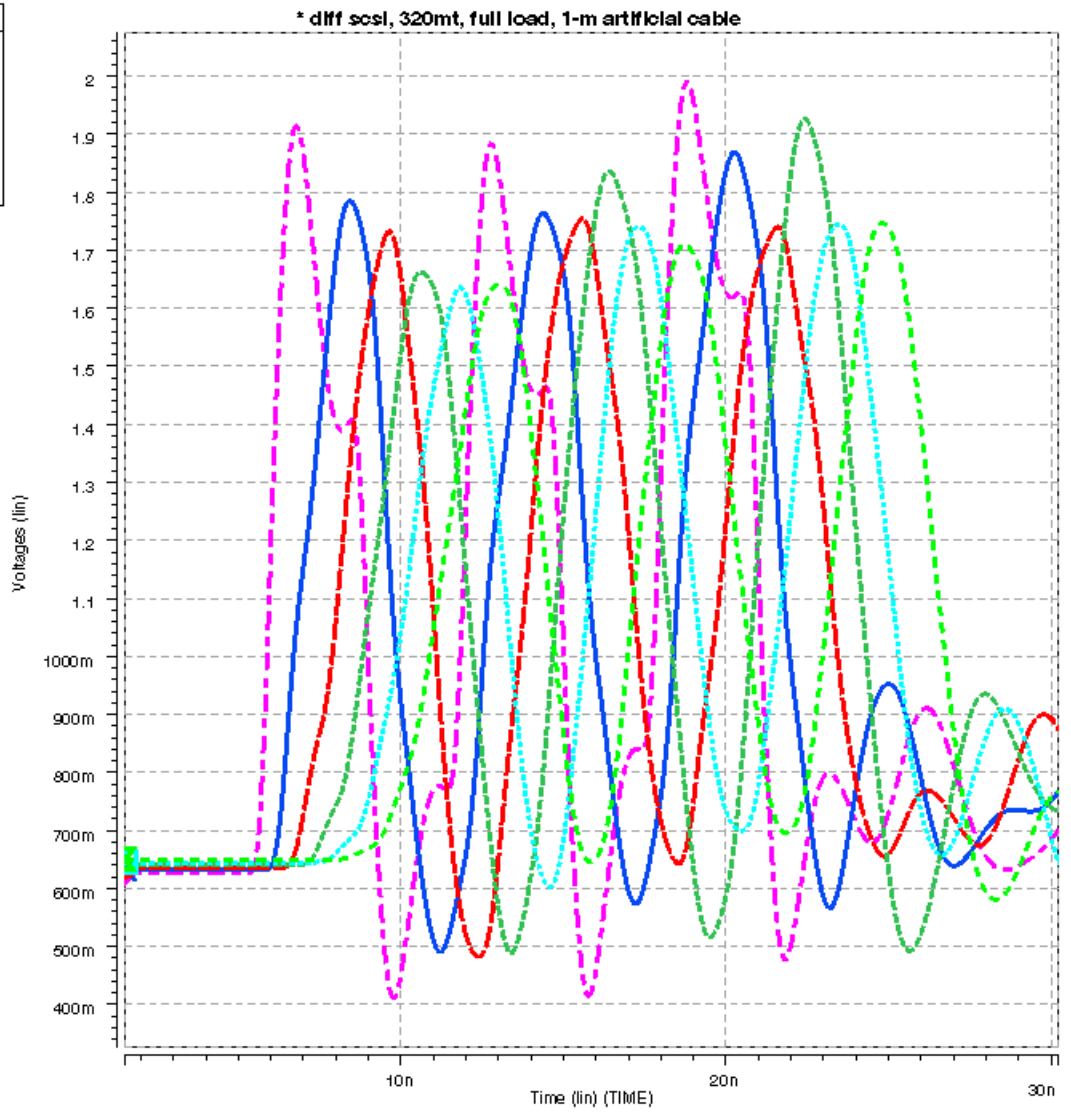
* diff scsl, 320mt, no drive, 12-m artificial cable



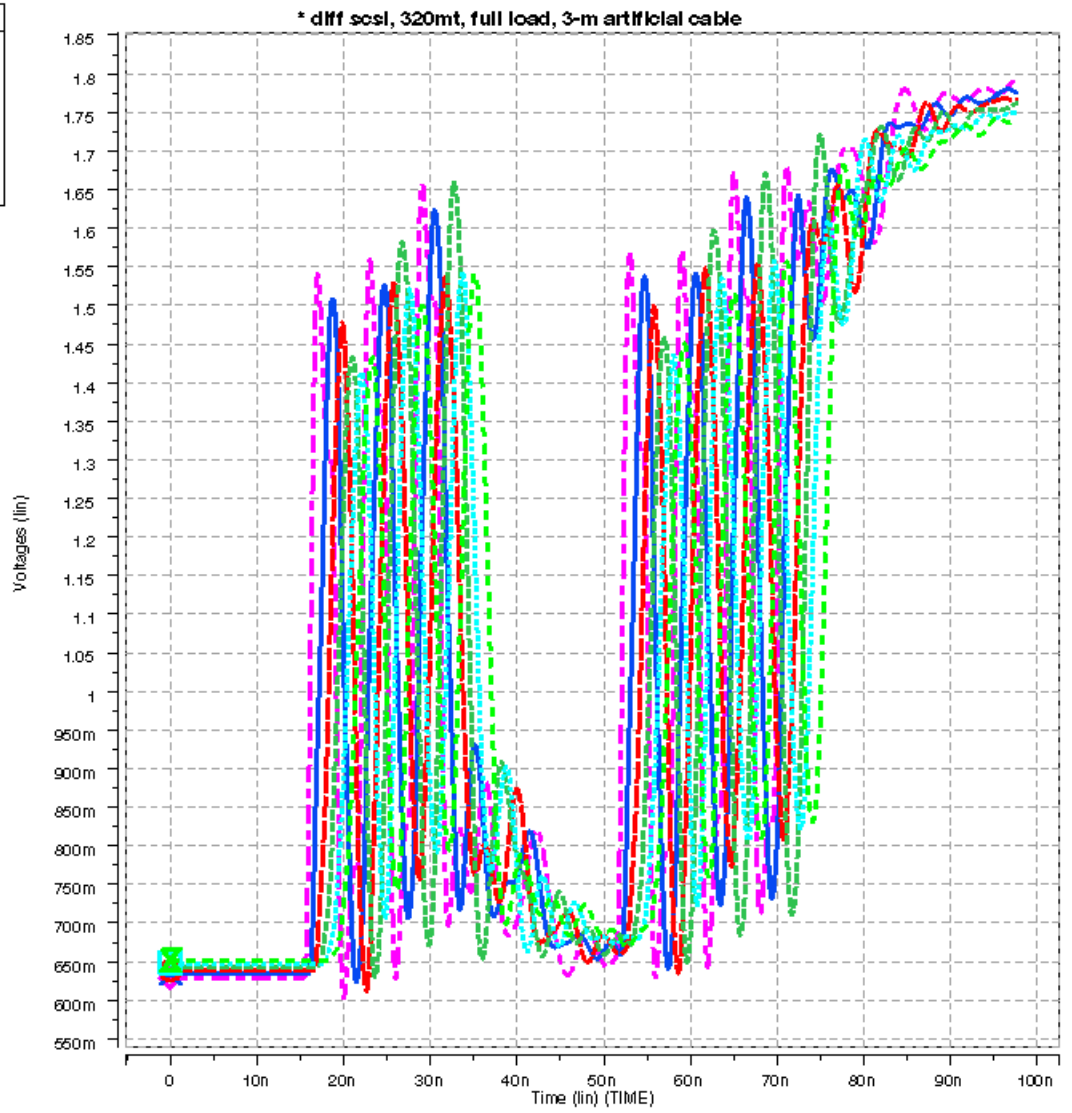
Wave	Symbol
D0:A0:v(1-17)	◇
D0:A0:v(3-17)	×
D0:A0:v(5-17)	○
D0:A0:v(7-17)	△
D0:A0:v(9-17)	□
D0:A0:v(11-17)	⊗



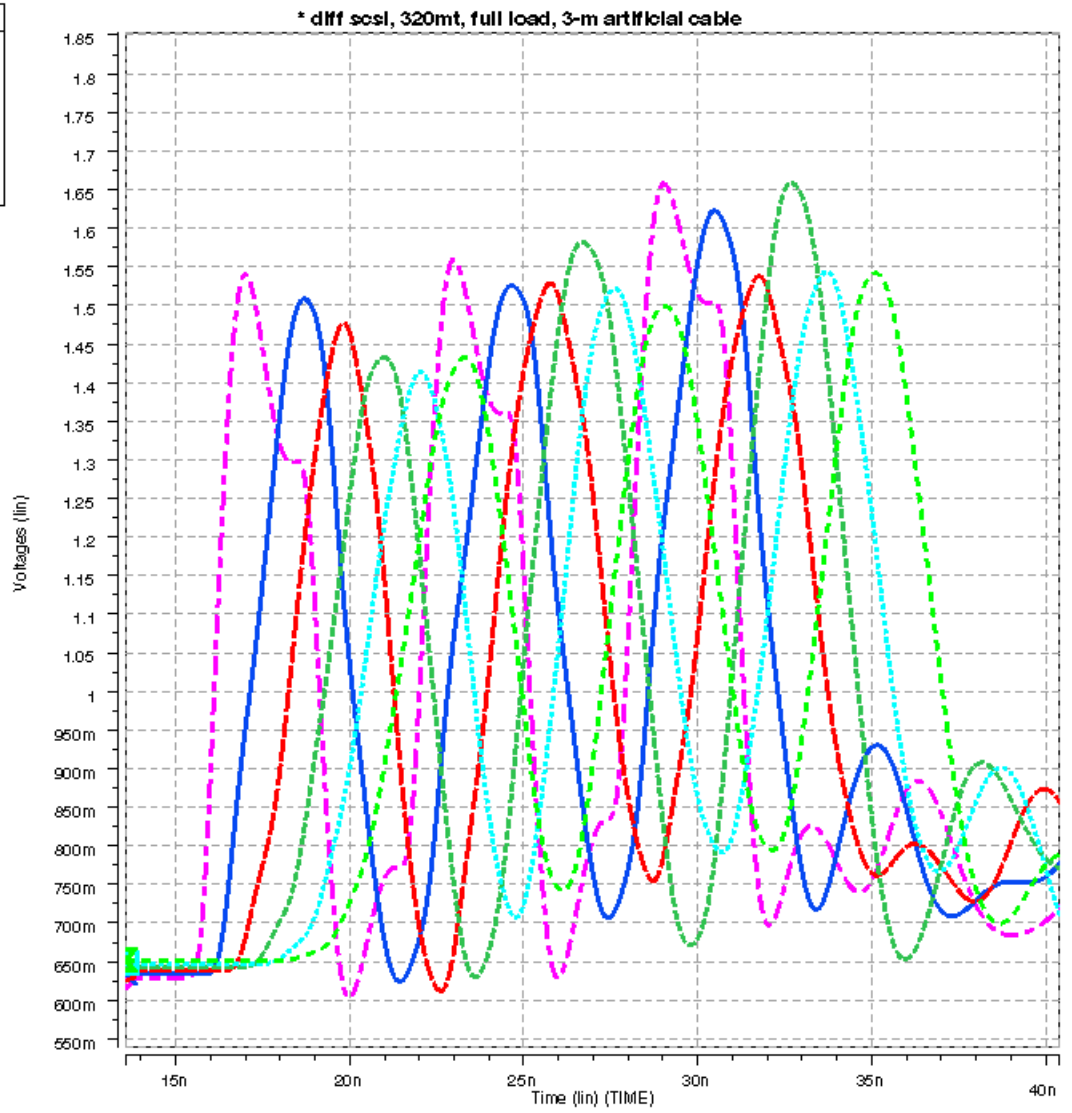
Wave	Symbol
D0:A0:v(1+17)	◇
D0:A0:v(3+17)	×
D0:A0:v(5+17)	○
D0:A0:v(7+17)	△
D0:A0:v(9+17)	□
D0:A0:v(11+17)	⊗



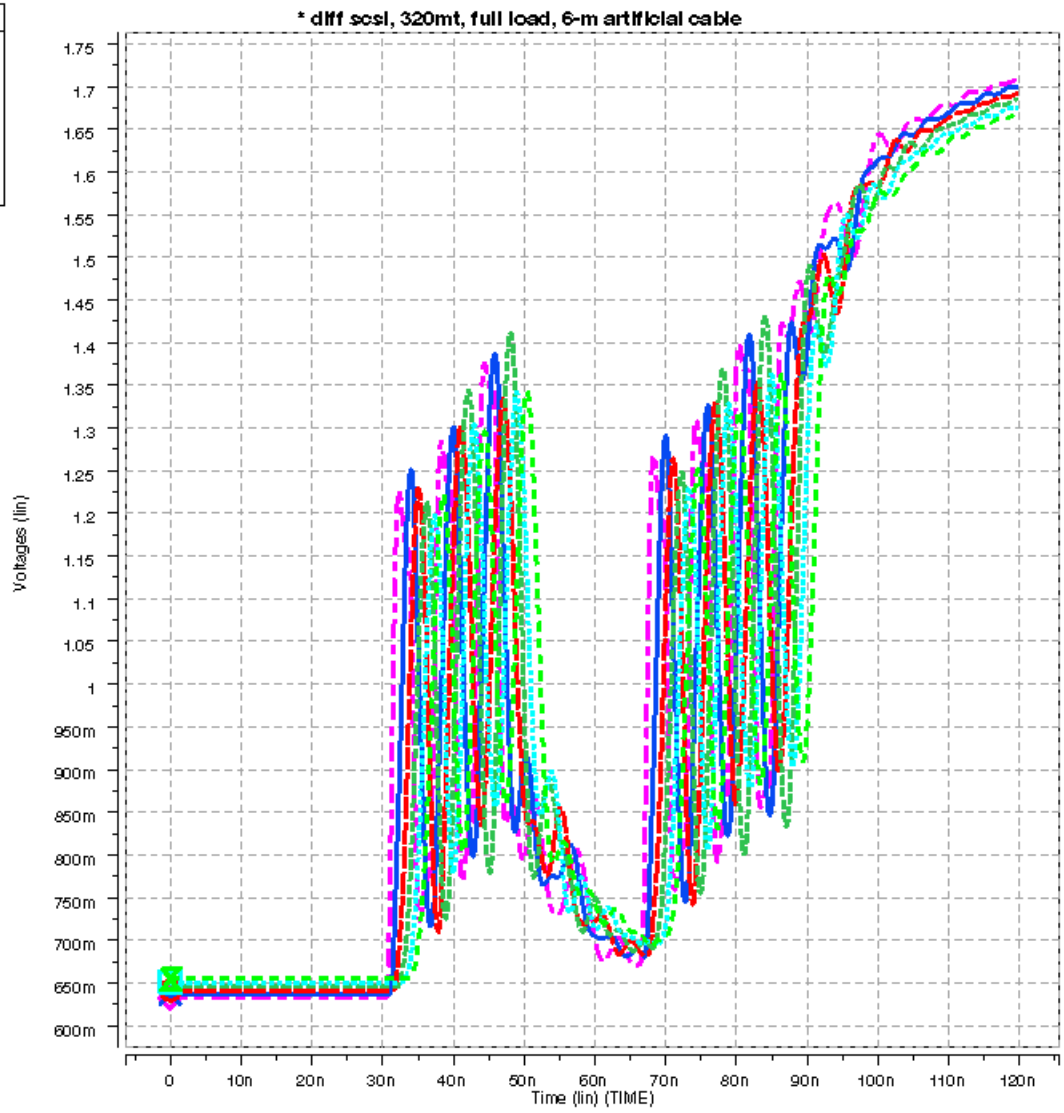
Wave	Symbol
D0:A0:v(1-17)	◇
D0:A0:v(3-17)	×
D0:A0:v(5-17)	○
D0:A0:v(7-17)	△
D0:A0:v(9-17)	□
D0:A0:v(11-17)	⊗



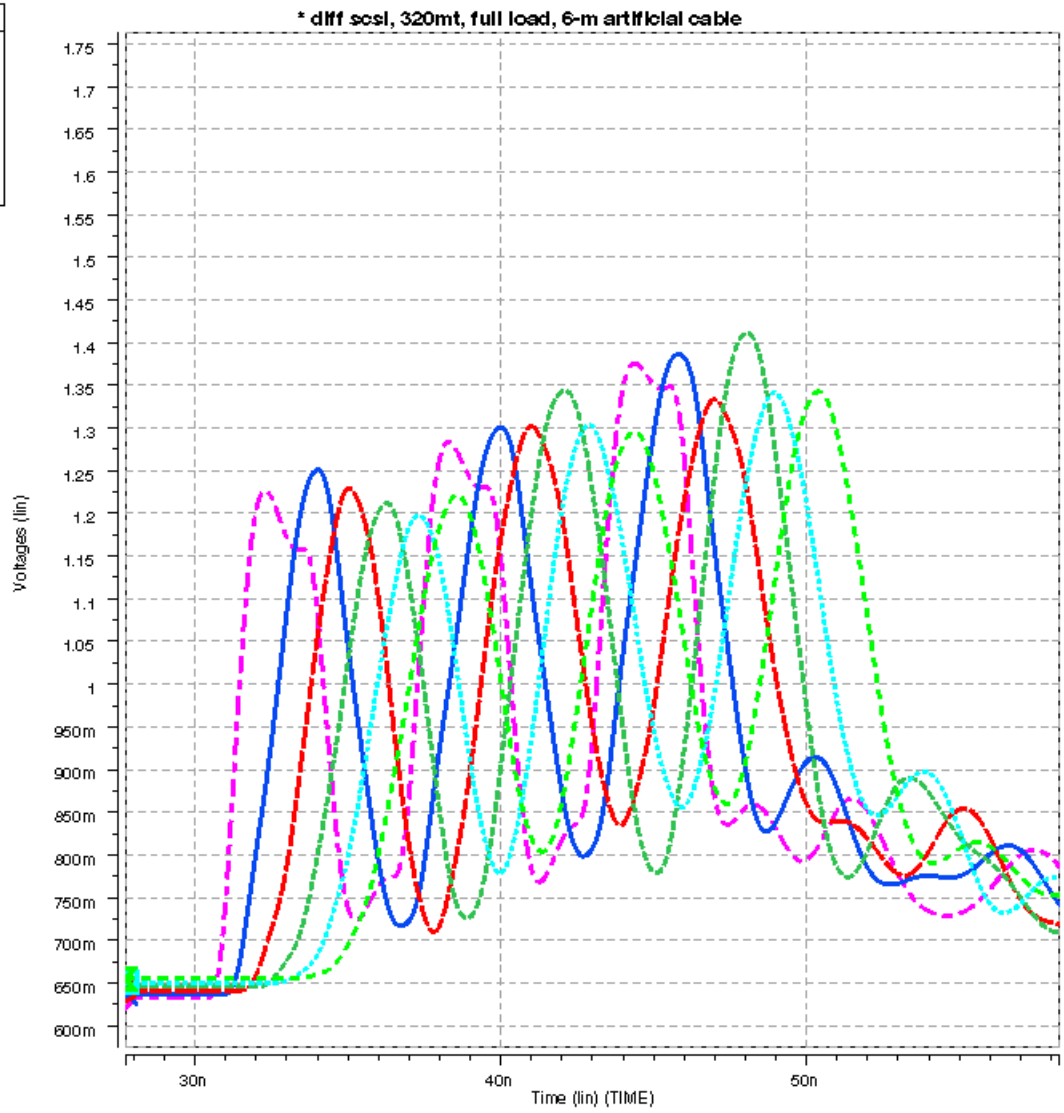
Wave	Symbol
D0:A0:v(117)	◇
D0:A0:v(317)	×
D0:A0:v(517)	○
D0:A0:v(717)	△
D0:A0:v(917)	□
D0:A0:v(1117)	⊗



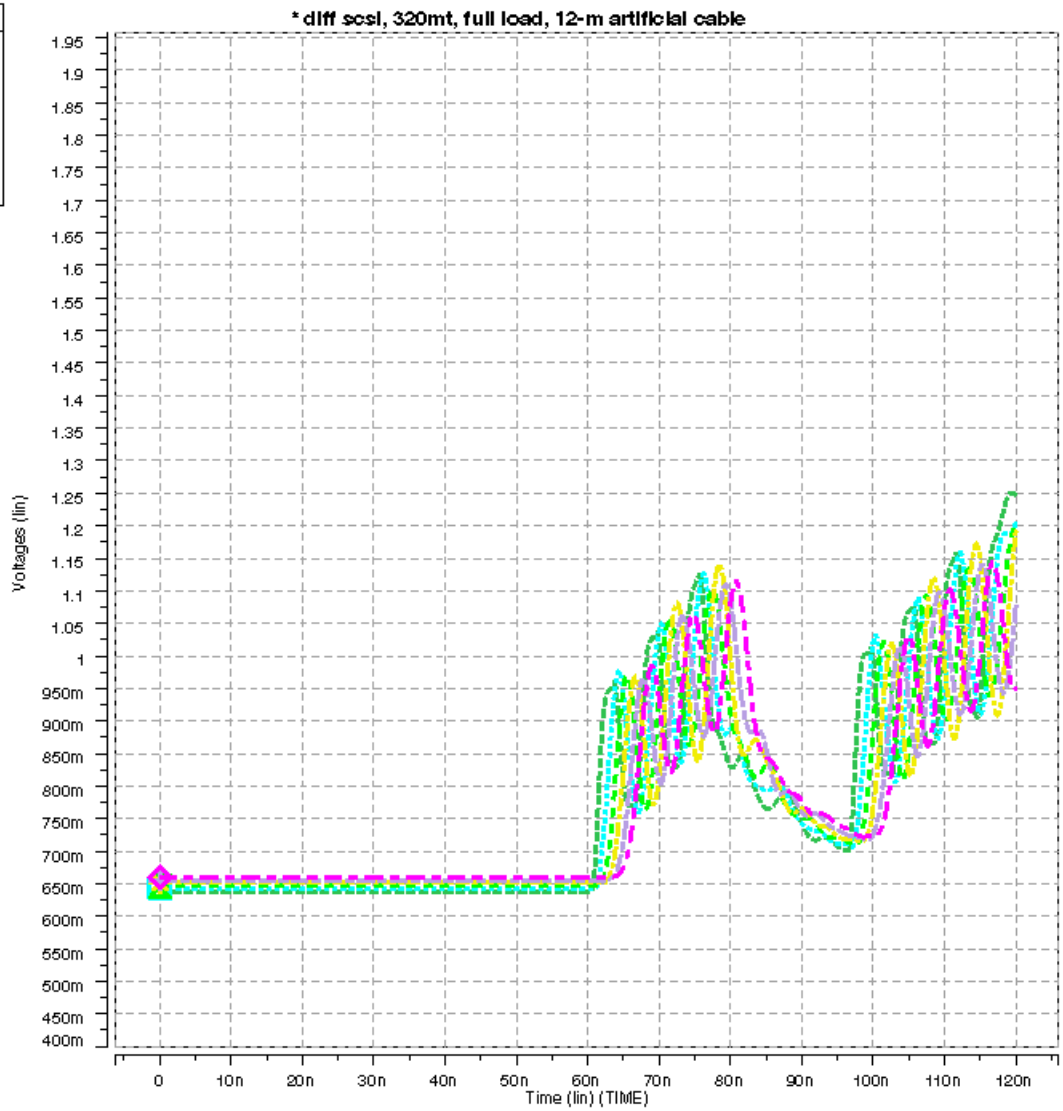
Wave	Symbol
D0:A0:v(1-17)	◇
D0:A0:v(3-17)	×
D0:A0:v(5-17)	○
D0:A0:v(7-17)	△
D0:A0:v(9-17)	□
D0:A0:v(11-17)	⊗



Wave	Symbol
D0:A0:v(1:17)	◇
D0:A0:v(3:17)	×
D0:A0:v(5:17)	○
D0:A0:v(7:17)	△
D0:A0:v(9:17)	□
D0:A0:v(11:17)	⊗



Wave	Symbol
D0:A0:v(1:17)	△
D0:A0:v(3:17)	□
D0:A0:v(5:17)	⊗
D0:A0:v(7:17)	✱
D0:A0:v(9:17)	+
D0:A0:v(11:17)	◇



Wave	Symbol
D0:A0:v(1-17)	◇
D0:A0:v(3-17)	×
D0:A0:v(5-17)	○
D0:A0:v(7-17)	△
D0:A0:v(9-17)	□
D0:A0:v(11-17)	⊗

* diff scsl, 320mt, full load, 12-m artificial cable

