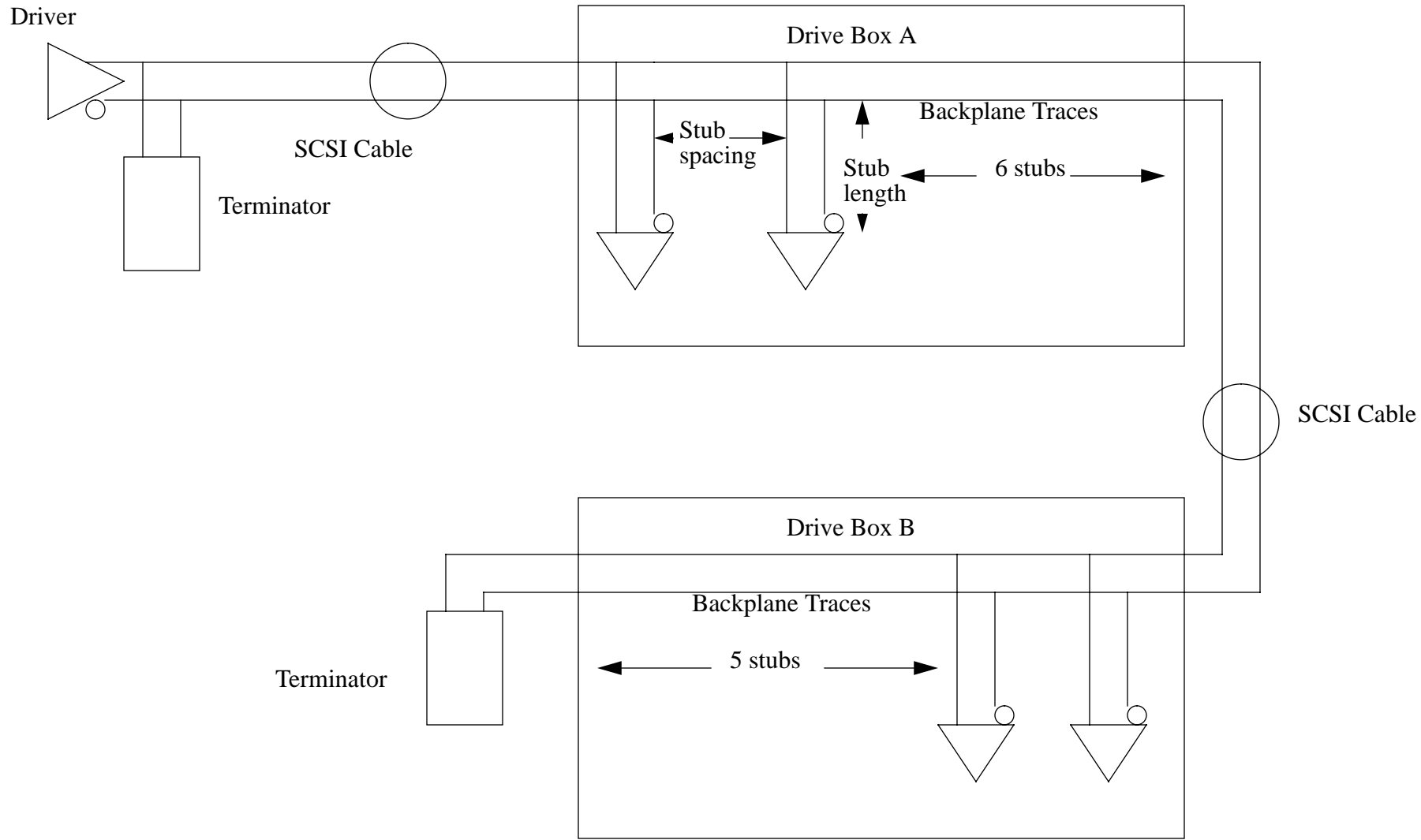# Fast 40 Proposal
David McCall - Quantum

Add an option to allow 50 ohm signals and Cables

- Raid boxes are difficult to match to 100 ohm cables
- Risk of half levels is high
- 50ohm cables match raid boxes well and eliminate half level risk
- Cables can be smaller at 50 ohms
- Backplanes can be more dense at 50 ohms
- Small signal swings beng proposed are compatible with 50 ohms
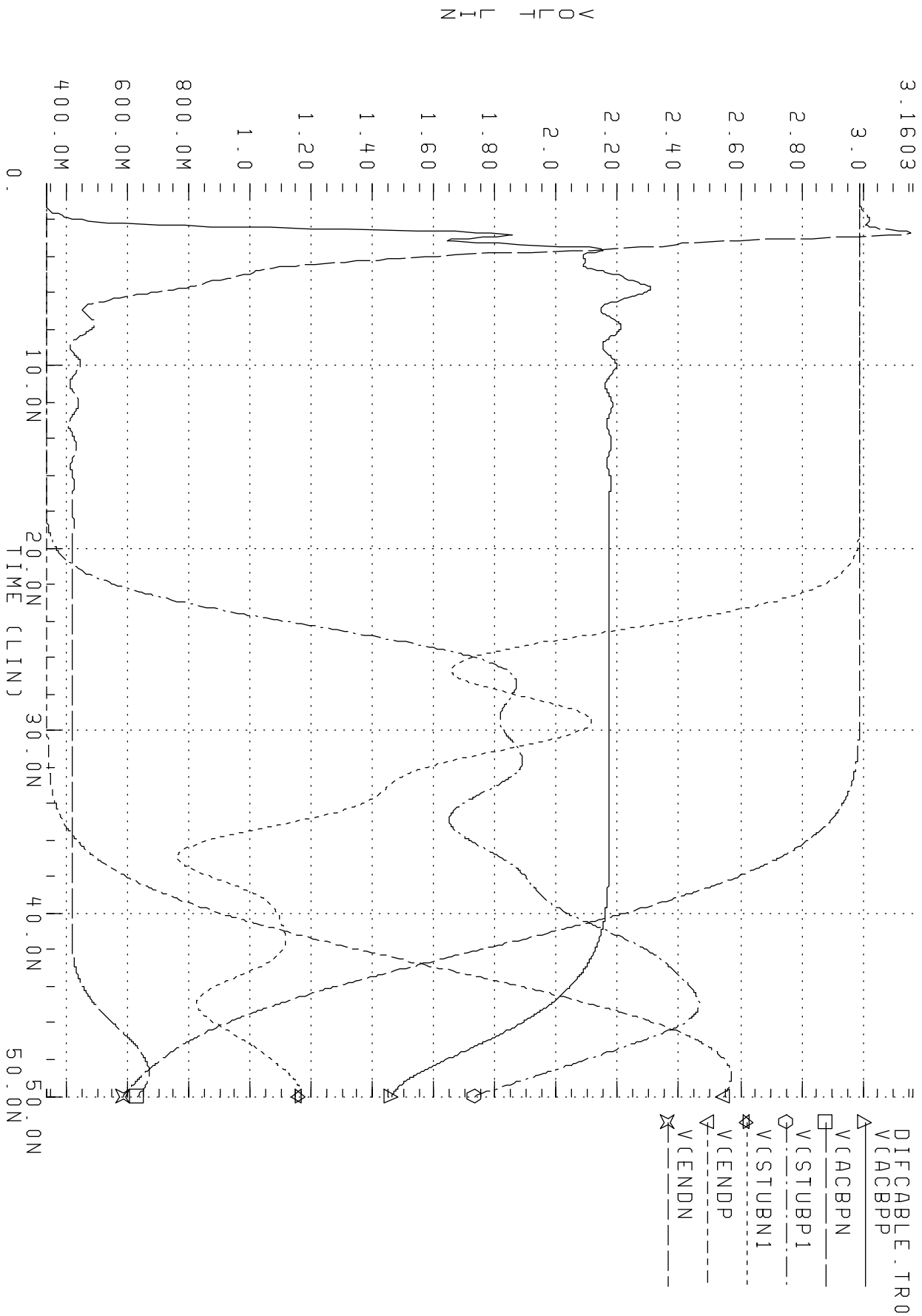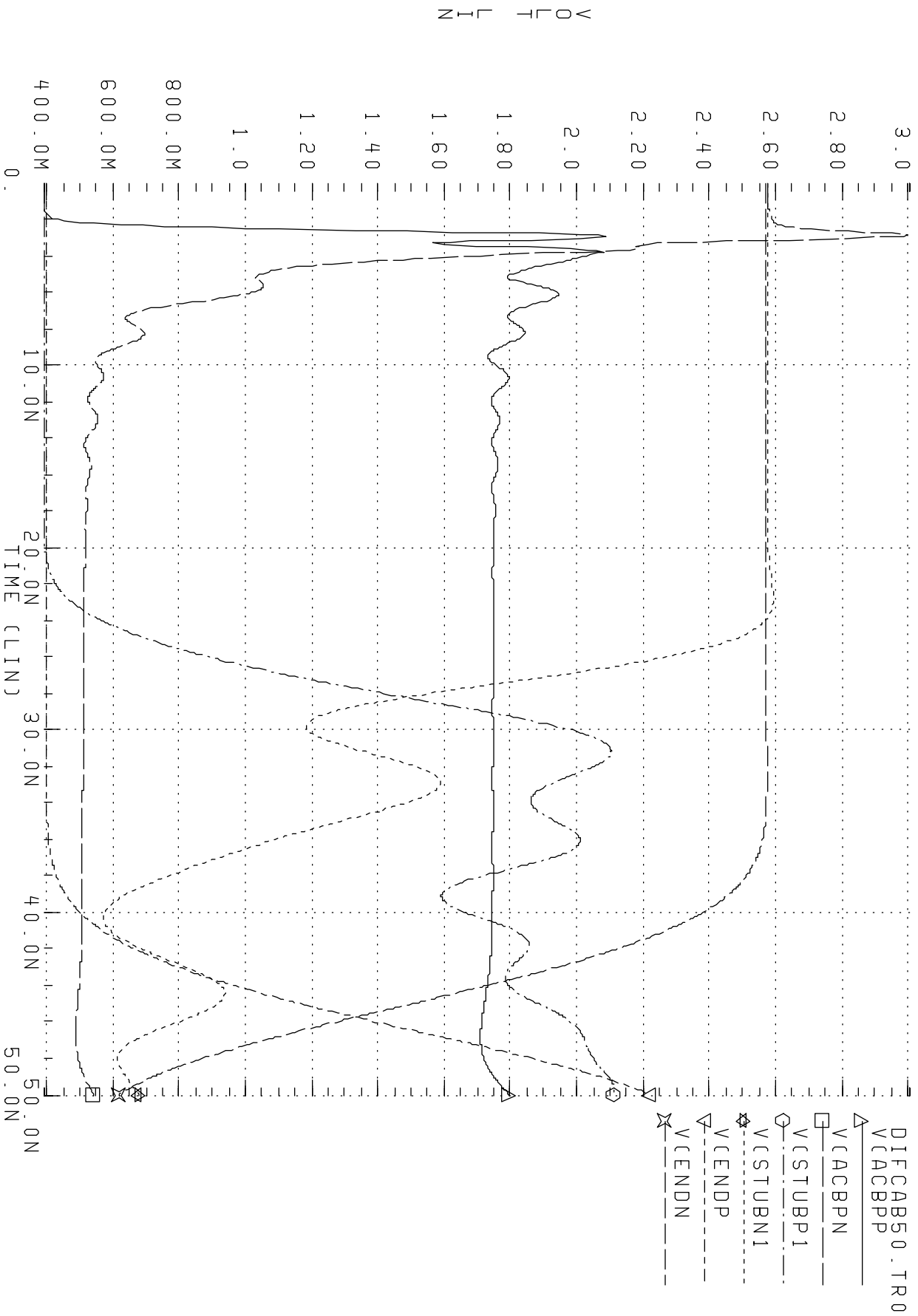
Driver

Backplane Traces

Drive Box A

Stub
spacing

Stub
length

6 stubs

SCSI Cable

Terminator

SCSI Cable

Drive Box B

Backplane Traces

Terminator

5 stubs

SCSI Simlation Configuration

Table 1: Simulation Cases

Case	Cable Zo	Cable length to box	Cable length box to box	Box Foil Zo	Stub length	Stub separation	Stub Capacitance	Termination
F20 100 ohms tight	100	3m	0.6m	60	15cm	5cm	30pf	Diff 105
F20 50 ohms tight	50	3m	0.6m	60	15cm	5cm	30pf	Diff 55
F20 100 ohms loose	100	3m	0.6m	100	15cm	30cm	22pf	Diff 105
F40 100 ohms tight	100	3m	0.6m	60	15cm	5cm	30pf	100
F40 50 ohms tight	50	3m	0.6m	60	15cm	5cm	30pf	60
F40 100 ohms loose	100	3m	0.6m	100	15cm	30cm	22pf	100

DIFF SCSI WITH 1000HM CABLE TO 16 DRIVES

DIFF SCSI WITH 50 OHM CABLE WITH 16 LOADS

VOLTS LIN

TIME (LIN)

DIFCAB50.TR0
VCACBPP
VCACBPN
VCSTUBP1
VCSTUBN1
VCENDP
VCENDN

DIFF SCSI BUS WITH 16 LOADS FOLLOWING RULES
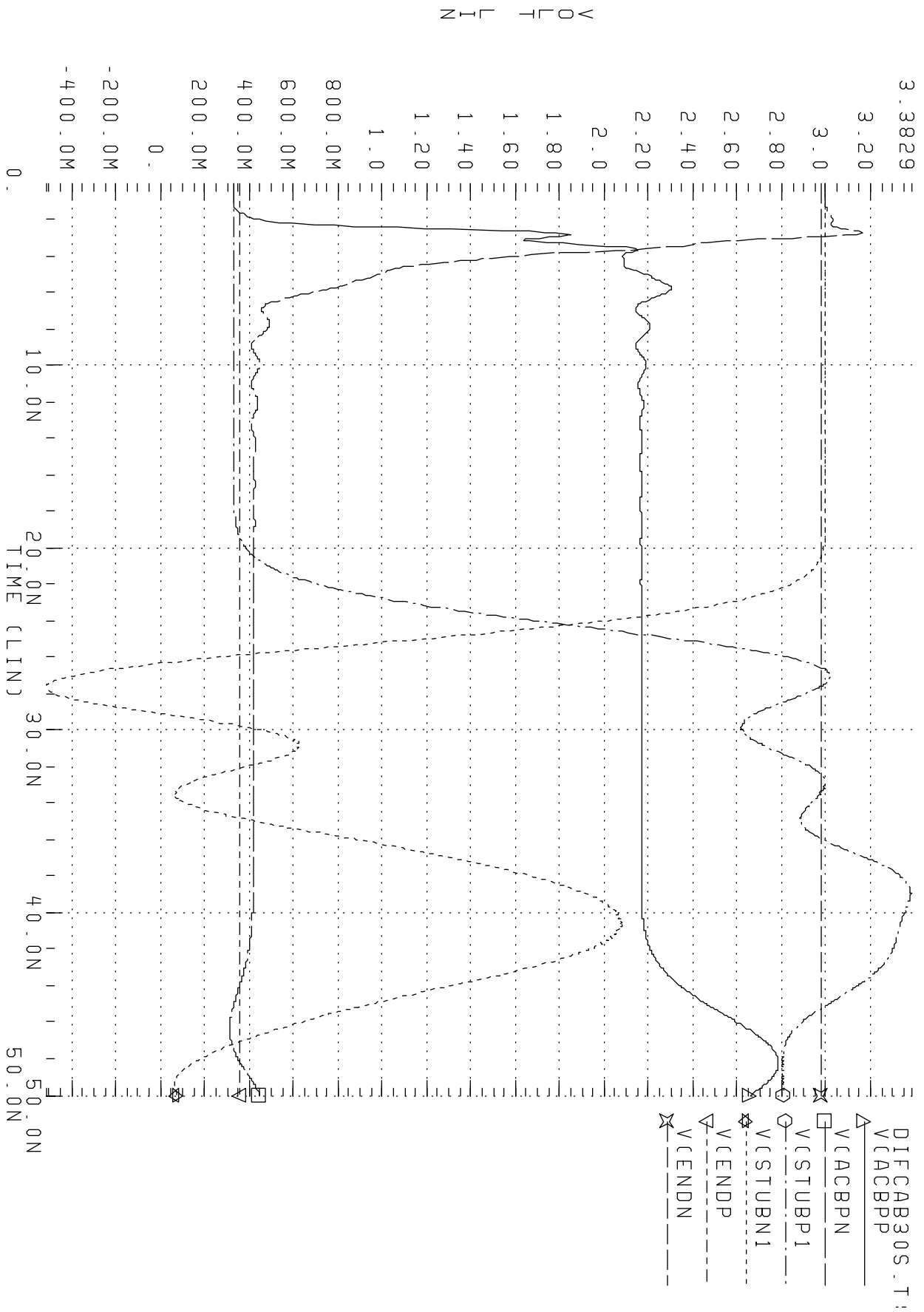
F40 SCSI CABLE NOISE SETUP   16 LOADS IN BOXES

VOLT IN

TIME (LIN)

F40DIF.TR0
VCACBPP
VCACBPN
VCSTUBP1
VCSTUBN1
VCENDP
VCENDN
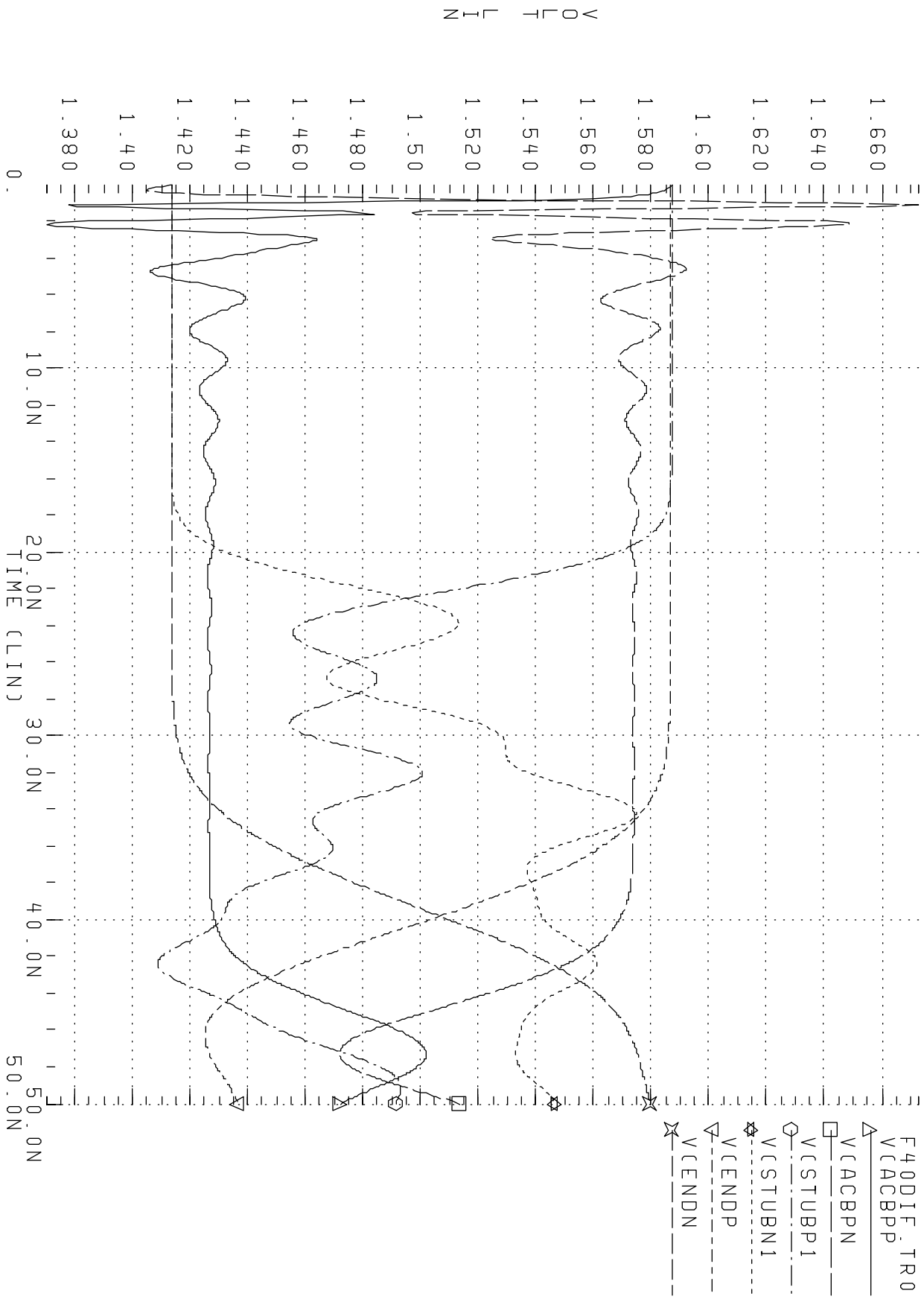
F40 SCSI CABLE NOISE SETUP 50OHM CABLES WITH 16 DRIVES

F40DIF50.TR0

VCACBPN
VCACBPP
VCSTUBP1
VCSTUBN1
VCENDP
VCENDN
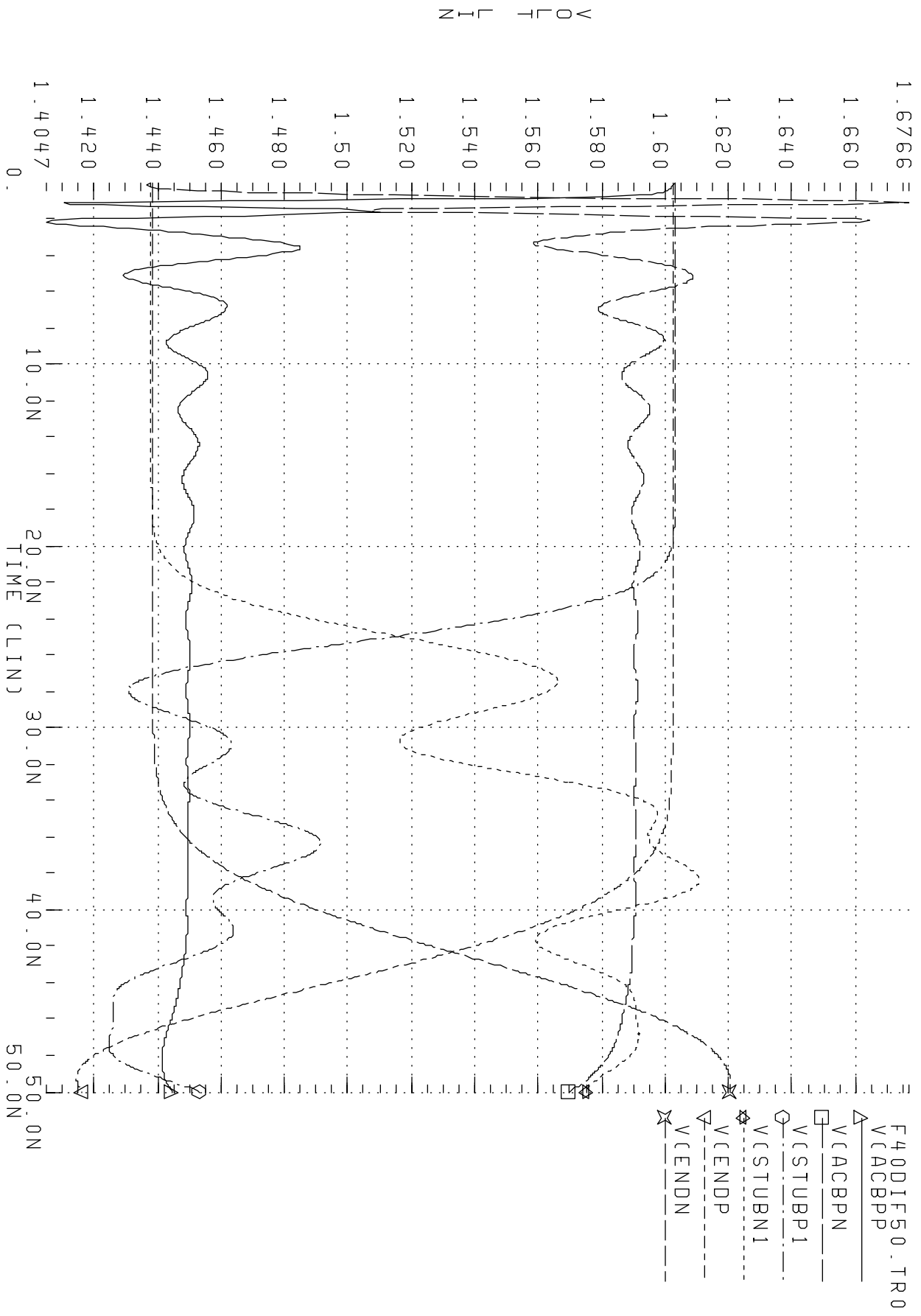
F40 SCSI CABLE NOISE SETUP   30CM BETWEEN DRIVES 16 LOADS

V
O
L
T
S

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N

TIME (LIN)

1.660
1.640
1.620
1.60
1.580
1.560
1.540
1.520
1.50
1.480
1.460
1.440
1.420
1.40
1.380
1.360
1.340

0.
10.0N
20.0N
30.0N
40.0N
50.0N

F40DIF30S.T!
VCACBPP
VCACBPN
VCSTUBP1
VCSTUBN1
VCENDN
VCENDP