



Fermi National Accelerator Laboratory

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Engineering Note

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Project: SVX Sequencer Backplane

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Subject: Temperature Rise Measurements of Low Mass Cable & HDI

Introduction

This test determined the temperature rise of the Low Mass Cable and HDI in the event of a failure which draws maximum current through the traces and vias. A current level of 3 Amps was sent through each of the traces for AVDD, AVDD2, and DVDD. Temperature was measured with an infrared thermometer at the hottest part of each segment listed, after the temperature stabilized, about 15 minutes. The Low Mass Cable and HDI were loosely draped without any restriction to ambient air cooling. To achieve current draw, shorts were soldered across a bypass capacitor for each trace.

Test Results

The following results were after 15 min. Temperature is in degrees Fahrenheit.

<u>Trace</u>	<u>Amps</u>	<u>Volts</u>	<u>Temp Low Mass Cable</u>	<u>Temp of HDI Tail</u>	<u>Temp of HDI</u>
AVDD	3	3.63	79	112	84
AVDD2	3	4.08	82	112	86
DVDD	3	4.77	79	133	91

Conclusion

The hottest portion of the devices tested was the HDI tail when current of 3 amps was forced through DVDD trace. The temperature was 133 degrees F.