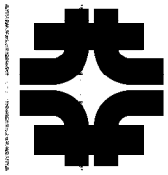

Fermi National Accelerator Laboratory

SVX II Silicon Upgrade

Silicon **R**eadout **C**ontroller

- SRC Design Changes -

02/20/98

Harvard University

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1. Introduction

Currently there are two complete versions of the SRC. During the integration and testing process of the SVX system, changes for the production version were developed. The purpose of this document is to summarize the changes made and aid those familiar with the previous SRC versions when using the production version. For detailed information consult the SRC Users Guide and Technical Reference Manual.

2. FIB Interface

2.1. SRCTM

The production SRC uses four G-links and up to eight status return cables implemented on a transition module.

2.2. Finisar serial interface lines

The Finisar optical transmitter contains a serial interface which G-link status can be requested. This consists of a serial command input, a serial status output, clock and G-link chip select. This will allow us to look at health of the G-link and possibly pre-determine G-link failure.

2.3. Four G-links VS. One

Everything concerning multiple G-links is handled by the SRCTM. As far as the SRC and software are concerned, there is still only one G-link.

2.4. Status lines

The previous version of the SRC utilized a copper differential status return cable from the FIB to the SRC. The meaning of these lines have changed to indicate classifications of errors determined by the FIB Fanout.

2.5. G-link control lines

The Previous version of the status cable included the signal that instructed the FIB Fanout to ‘RUN’. This command is now transmitted using the /CAV line on the G-link.

3. VME Interface

3.1. A32/D32

The production SRC uses A32/D32 only. The previous version used A32/D16 only.

4. Error Logger

4.1. Addresses

Changes were made to the addresses of the error logs in addition to those produced by the conversion from D16 to D32. The error logger utilizes the additional 16 data lines. Which will change the address locations of the error log FIFOs.

4.2. FIB errors

The four classification of FIB errors will have a fatal error mask and error log mask.

5. Taxi Decoder and Emulator

5.1. Emulator

The emulator FIFO has been changed to emulate TSI data instead of TSI commands. This will allow the Taxi decoder to be included in the emulator test path.

5.2. History

A history FIFO has been added to analyze data being sent from the TSI.

6. General

6.1. Halt Recover Run

Everything described in the Halt Recover Run section of the SRC document is newly implemented.

6.2. Serial Number

A register containing a board serial number that can be read via VME has been added.