



# Fermi National Accelerator Laboratory

**Mike Utes**

## **Engineering Note**

**Date: 3/11/02**

**Project: Run II A**

**Doc. No: U020311B**

**Subject: Converting an SMT Sequencer to a CFT Sequencer, and Vice Versa**

SMT and CFT Sequencers have different firmware in U67 and U106 (Prtrcd.pof) and U148 (Pcutil2.pof), plus they run the SVX chips at different readout speeds; SMT runs readout at 53MHz, while CFT runs readout at 40MHz. This document describes the jumper settings, etc. needed to set a board for either mode. The firmware changes are described in Engineering Note U020311A, "Downloading the latest Platform firmware into Sequencer and Sequencer Controller".

Only a few things are needed to set a board in either mode. J3 and J8, referred to below, are the jumpers near the crystal sockets U57 and U109. They select either the on-board 53MHz, or the optional crystal, to go to the readout section of each half of the board. The G-Link jumpers referred to are two horizontal jumpers (or empty posts) located immediately to the lower left of each G-Link chip. There are four G-Link chips (with heat sinks), one near each laser fiber driver. These jumpers set the frequency range of the G-Link chip. All other changes involve firmware.

*Converting SMT Sequencer into CFT Sequencer:*

Sequencers with IDs up to 164:

- 1) Add 40MHz crystals to sockets for U57 and U109.
- 2) Place jumpers (shunts) on the lower two posts of J3 and J8.
- 3) Insert one jumper horizontally on lower two G-Link posts for each G-Link.

Sequencers with IDs 165 and up:

- 1) Add 40MHz crystals to sockets for U57 and U109.
- 2) Place jumpers (shunts) on the lower two posts of J3 and J8.
- 3) Insert one jumper horizontally on upper two G-Link posts for each G-Link.

*Converting CFT Sequencer into SMT Sequencer:*

Sequencers with IDs up to 164:

- 1) Remove 40MHz crystals from sockets for U57 and U109.
- 2) Place jumpers (shunts) on the upper two posts of J3 and J8.
- 3) Remove G-Link jumpers.

Sequencers with IDs 165 and up:

- 1) Remove 40MHz crystals from sockets for U57 and U109.
- 2) Place jumpers (shunts) on the upper two posts of J3 and J8.
- 3) Place jumpers (horizontally) on all eight G-Link jumper locations.