



Fermi National Accelerator Laboratory

The Tevatron Beam Loss Monitoring System

VME Base Address Switch Settings for the BLM System

-- FINAL --

February 20, 2007

Version 1.3

Kelly Knickerbocker

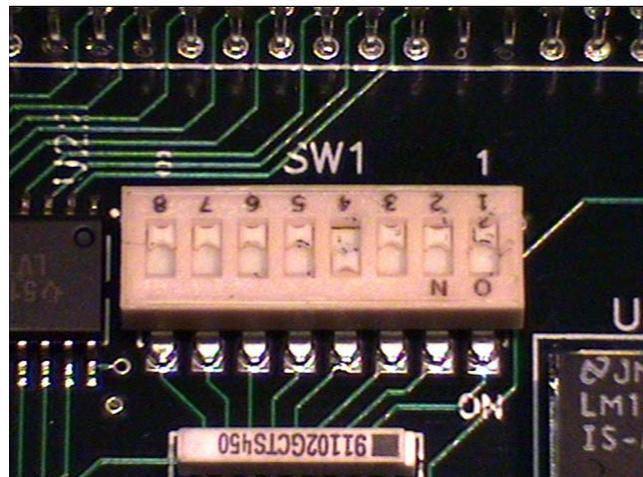
BLM System - VME Base Address Switch Settings

► Introduction

This document is intended as a quick guide to setting up the VME base address for each of the cards (High Voltage, Controller, Timing, Abort, and Digitizer) in the Fermilab BLM system. Each card in the BLM system has a 7 or 8 segment DIP switch that controls the VME address range the card will respond to. To make it easier to find and set the switch values for each card, a photo of the DIP switch is shown, along with a graphic to indicate the current logic state of the switch setting. An explanation of the setting, and the VME address bit each switch segment corresponds to is also included.

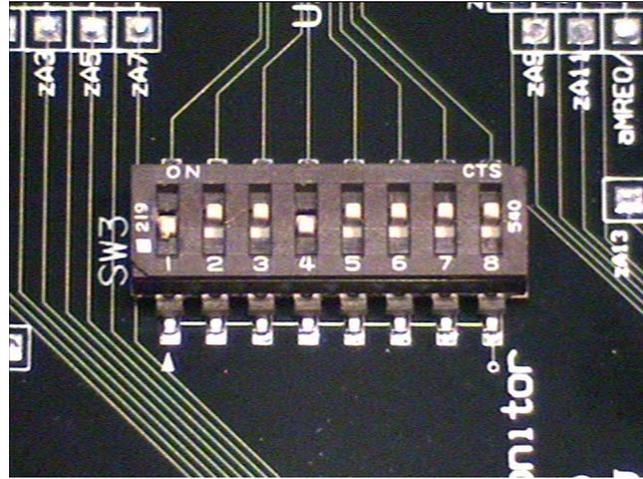
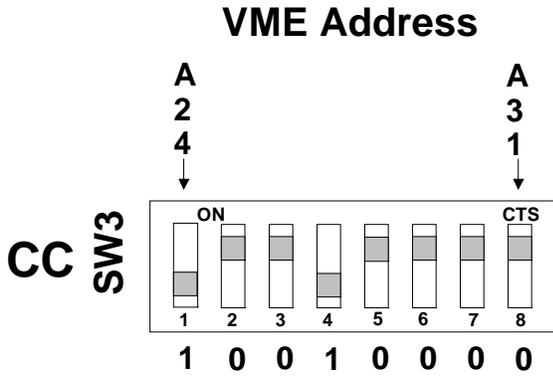
► BLM System Switches

BLM High Voltage Card VME Address Switch Settings



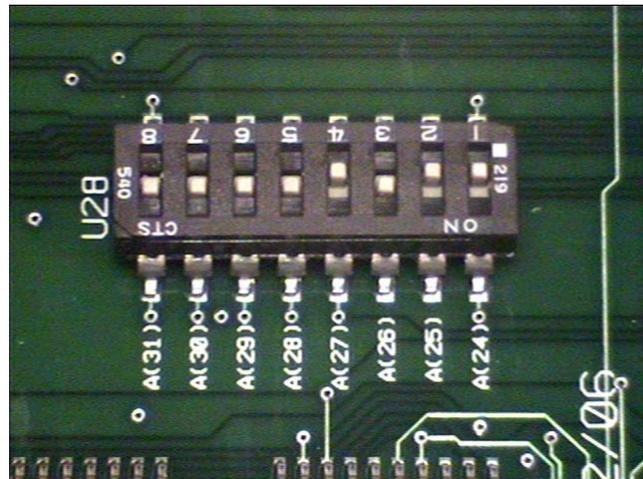
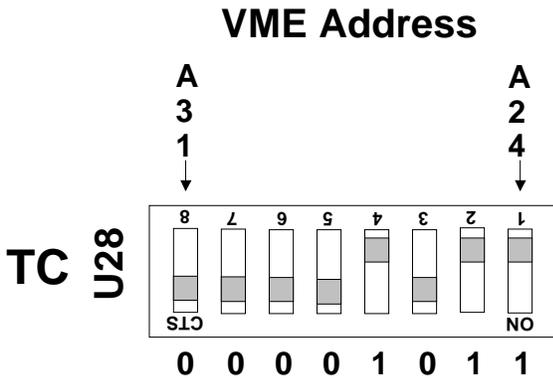
This switch setting represents VME base address 0x0800 0000 for the HV Card. On the HV card the logic state represented by a switch setting is inverted inside the FPGA. Moving a switch to the "ON" position shorts that bit to ground, but this represents a 1 in the VME address. In the "OFF" position the switch is open and the bit is pulled to a logic 1 by a resistor, this corresponds to a 0 in the address. DIP switch position 8 corresponds to VME address line A31, position 7 to A30, position 6 to A29, etc.

BLM Controller Card VME Address Switch Settings



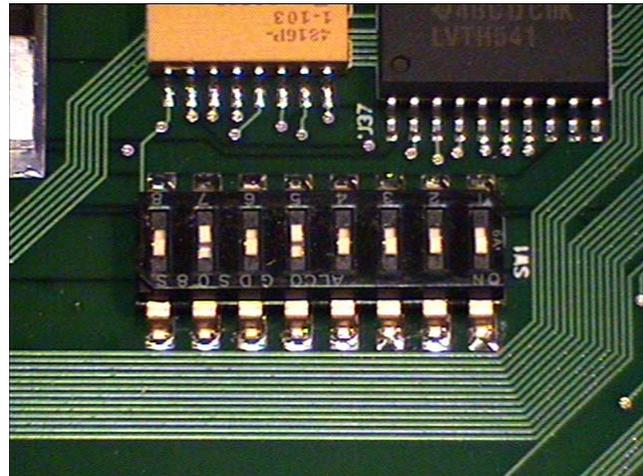
This switch setting represents VME base address 0x0900 0000 for the CC Card. Moving a switch to the "ON" position connects that bit position to ground, representing a logic 0 on the address decoder chip. In the "OFF" position the switch is open and the bit is pulled to a logic 1 by a resistor in the decoder chip (74ACT520).

BLM Timing Card VME Address Switch Settings



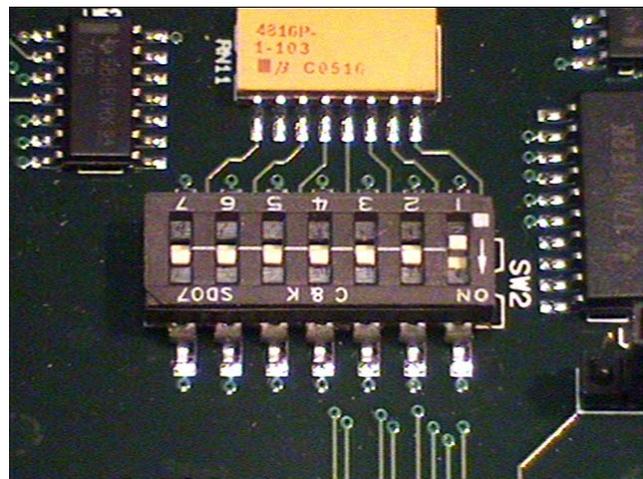
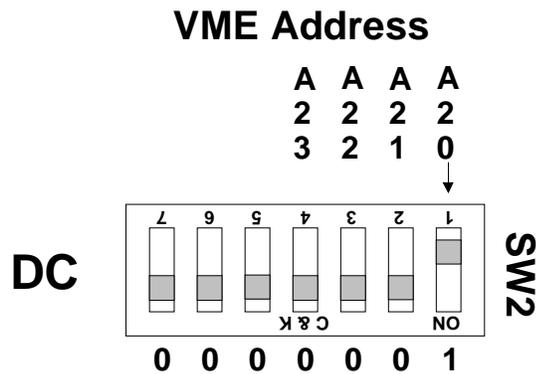
This switch setting represents VME base address 0x0B00 0000 for the TC Card. Moving a switch to the "ON" position connects that bit position to ground, representing a logic 0 on the address decoder chip. In the "OFF" position the switch is open and the bit is pulled to a logic 1 by a resistor in the decoder chip (74ACT520). The VME address lines that the switches correspond to are shown on the silkscreen.

BLM Abort Card VME Address Switch Settings



This switch setting represents VME base address 0x0A00 0000 for the AC Card. Moving a switch to the "ON" position connects that bit position to ground, representing a logic 0 on the address decoder chip (74LS688). In the "OFF" position the switch is open and the bit is pulled to a logic 1 by a resistor pack on the PC board. Switch position 1 corresponds to VME address line A31, position 2 to A30, etc.

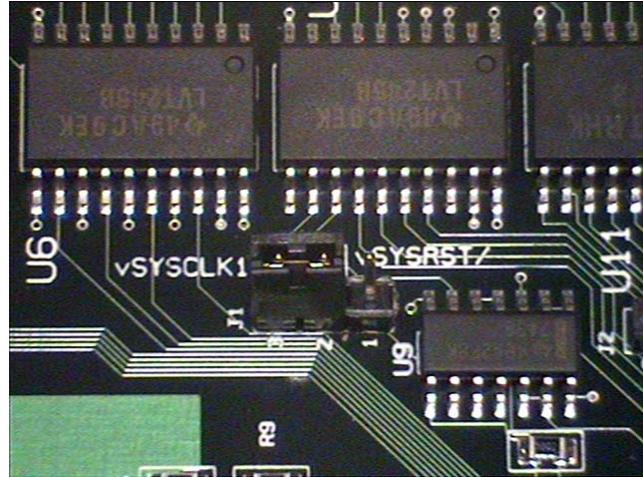
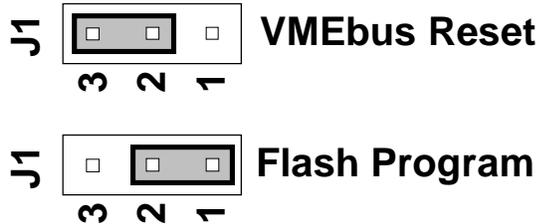
BLM Digitizer Card VME Address Switch Settings



This switch setting represents VME base address 0x0010 0000 for the DC Card. Moving a switch to the "ON" position shorts that bit position to ground, representing a logic 0 for the FPGA decoding logic. In the "OFF" position the switch is open and the bit is pulled to a logic 1 by a resistor pack on the PC board. Only switch positions 1, 2, 3, and 4 are used to set the VME base address, with switch 4 corresponding to A23, switch 3 to A22, etc. Switches 5, 6, and 7 set other operating modes of the Digitizer card.

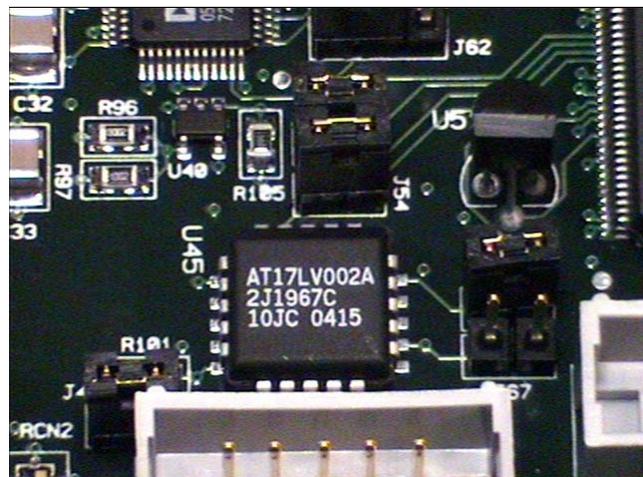
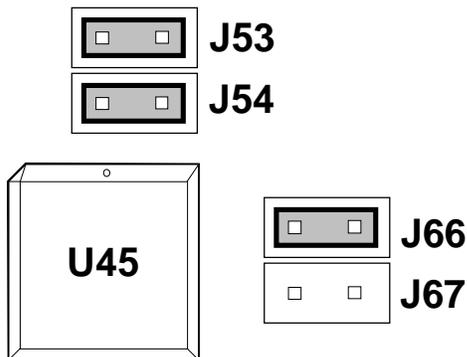
► **BLM System Jumpers**

BLM Controller Card Jumper Setting

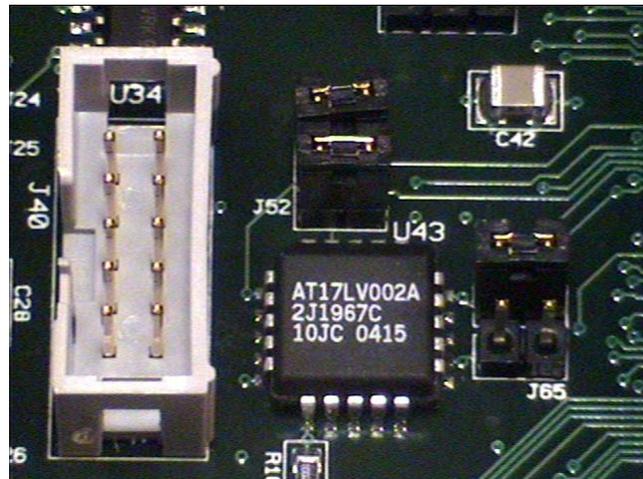
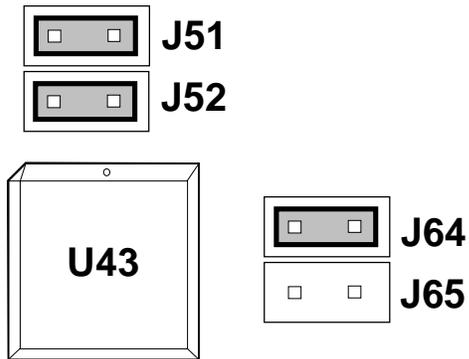


Jumper J1 determines whether or not the VMEbus SYSRESET* line affects the FPGA logic and eZ80 CPU on the Controller Card. Connecting a shorting jumper between pins 1 and 2 disables the VMEbus SYSRESET* line. This is the position the jumper should be in (between 1 and 2) when programming the eZ80s flash memory on the bench with the Zilog ZDS development system. With the shorting jumper connected between positions 2 and 3 the VMEbus SYSRESET* line is enabled, and will reset the Controller Card. This is the "In Field" setting for this jumper and its position should be checked before CC installation.

BLM Digitizer Card Jumper Settings



Jumpers J53, J54 and J66 should be in place to permit VMEbus programming of the Digitizer upper (U45) FPGA configuration device (AT17LV002A).



Jumpers J51, J52 and J64 should be in place to permit VMEbus programming of the Digitizer lower (U43) FPGA configuration device (AT17LV002A). If remote programming of the FPGA configuration devices is not necessary, jumpers J53, J54, J66, J51, J52 and J64 may be removed and the configuration devices can be programmed via the 10-pin headers J55 and J40 with the Atmel AT17 CPS software and an ATDH2225 dongle.

BLM System VME Bus Base Address Maps

As of February 2007

BLM System "In Field" Address Map

High Voltage Card	0800 0000	32-Bit VME Address
Controller Card	0900 0000	32-Bit VME Address
Timing Card	0B00 0000	32-Bit VME Address
Abort Card	0A00 0000	32-Bit VME Address
Abort Serial Card*	0C00 0000	32-Bit VME Address
Digitizer Cards	xx00 0000	24-Bit VME Address
Digitizer Cards	xx10 0000	24-Bit VME Address
Digitizer Cards	xx20 0000	24-Bit VME Address
Etc....		

***Note:** Abort Serial Card is unique to A0, and serves as the data concentrator for the BLM Abort Serial Link system.

BLM System Test Stand Address Map

High Voltage Card	3000 0000	32-Bit VME Address
Controller Card	0980 0000	32-Bit VME Address
Timing Card	1000 0000	32-Bit VME Address
Abort Card	0300 0000	32-Bit VME Address
Digitizer Cards	xx00 0000	24-Bit VME Address
Digitizer Cards	xx10 0000	24-Bit VME Address
Digitizer Cards	xx20 0000	24-Bit VME Address
Etc....		

Revisions

Version 1.0 - July 14, 2006 - First Draft

Version 1.1 - July 24, 2006 - Corrected error in AC card switch setting drawing.

Version 1.2 - September 12, 2006 - Updated "In Field" address map to reflect TC address change. Updated TC switch settings. Added jumper's section.

Version 1.3 - February 20, 2007 - Updated address map to include Abort Serial Card.