

■ ATLAS Electronics Notes ■

MEMO: Wednesday, November 14, 2001
TO: ATLAS Muon Front-end Electronics Group
FROM: J. Chapman
RE: How to use new synchronize watches function of AMT-1 MiniDaq
CC: All CSM-0 Users

Purpose of the added code

The AMT-1 has been observed to powerup in two different states that result in digitizations that are 12.5ns different. This is due to separate FFs in the unit for clock synchronization with the external 40Mhz clock and for digitization. The AMT-2 will not have the feature (attribute/bug whatever). However, for the ASD-lite boards, it was necessary to add a JTAG instruction (5) that resets the AMT-1 using the JTAG clock which is derived from the external 40Mhz clock and thus in a fixed phase relative to it.

To use this reset feature, one must run the new MiniDaq project with the “synchronize watches” function. This function has a keyboard shortcut Ctrl-w. The function appears on the JTAG menu as synchronize watches button. This button calls the function (of the same name) in `csm0_daq.c`. The function turns on the JTAG serial line and then calls `reset_clock` located and defined in file `jtag_mezzanine.c`. The `reset_clock` function works by construction of a linked list of JTAG strings that are few to the JTAG loop using the standard commands defined within MiniDaq for JTAG programming.

Procedure

It has been observed that MiniDaq requires a cold start following this AMT-1 reset. The reason for this is not clear but will be investigated. Thus the sequence is:

- Start MiniDaq version 1.3.3. with “synchronize watches”
- Load profile
- Synchronize watches
- perform “cold start”
- Enable serial JTAG, program TDC with JTAG, disable serial, & enable TDCs

