

## Operating the DAQ-480 System

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Revision: 19-Oct-2012

### Power Up and Start the Programs:

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1. Turn ON the VME crate power supply.
2. Turn on the Preamp power supply.
3. Stop all other programs that are running on the DAQ computer.
4. Start the DAQ-480 TCS program. The TCS log file window will open on the screen. Let the TCS program run for about 10 seconds to establish its VME crate connection, its memory usage, and its network connection . Place its log file window in a standard place on the screen where you can see it. As the TCS program starts up it is not unusual for it to report a Bit-3 Adaptor Connection error about 10 lines down into the TCS log file window.
5. Start the DAQ-480 GUI program. The GUI log file window and the GUI Menu window should both open on the screen. Please place these windows in standard locations on the screen where you and other people can expect to find them. To rationally operate the DAQ-480 software you need to be able to see all of the GUI Menu and at least the recent lines on the two log file windows .

### Cold Start the DAQ Hardware and Software:

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1. Near the bottom of the main GUI Menu click once the "Configure DAQ-480" button. This command will take about 30 seconds to run to completion. You should be able to see it talk to each of the 10 ADF-2 cards

in the VME crate. It makes one pass through these 10 cards in the order of increasing slot number. This step is loading the logic into the FPGAs on the ADF-2 cards.

The GUI log file will show you when the Configure command has completed. Allow this command to complete before going on to the next step.

2. Near the bottom of the main GUI Menu click once the "Initialize DAQ-480" button. This command will take about 1 minute to complete. The Initialize command will make a number of passes through the 10 ADF-2 cards. With each pass it is loading default values into the various control registers on these cards to bring them to a known default operating condition.

On its final pass the Initialize command sets the pedestal of each of the channels. As it completes this pedestal work on each card a window will pop-up showing you the results - including the noise measurement information. When you have finished looking at each of these 10 pop-up windows click the "OK" button at the bottom of the window and the Initialize command will then go on to the next card.

The GUI log file will show you when the Initialize command has completed. Allow this command to complete before going on to the next step.

#### Making a Run - Collecting Data:

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1. Near the bottom of the main GUI Menu click once the "Collect Event" button. This will take you to the Collect Events sub-menu.
2. In the Collect Events sub-menu set the following:
  - Output Mode: ASCII or Binary This controls which type of output file the DAQ-480 program will write during this run.

If this is a short run with just 10s of events and you want to plot the raw event data using the plot function that is built into DAQ-480 then you should use the ASCII mode output file.

If this is a long run with many events or if you want to run at the highest rate possible then you should use the Binary mode.

- Max Event: This is a way to automatically stop the run after it collects the specified number of events.

For example, if you only want a few events to verify data quality or something like that then set Max Events to some small number, e.g. 10, and the run that you are starting will automatically stop after it collects 10 events.

If you want a long run then set Max Events to a larger number than the number of events that you plan to actually collect. You will now need to use the Stop Run button when you want to end the run. Note that the Stop Run button only takes effect after the next event is collected after the button has been pressed.

- Prescale: This lets you set how many seconds you want the DAQ system to remain quiescent after each event that it collects.

For example, if you want to look at a scope display or something after each event then you may want to set Prescale to 5 or 10 seconds.

If you want to collect events as fast as possible then set Prescale to zero.

- When you are ready to start the run press the "Start New Run" button once. After you press the Start New Run button park the mouse cursor on an inactive part of the screen and leave it there. Do not continue moving the cursor around over active parts of the screen (icons and buttons). Do not start up any other programs.

3. The new run will either automatically stop when it reaches the Max Events count or you will need to manually stop the run by pressing the "Stop Run" button once.
  - Recall, if you use the Stop Run button that this only takes effect after the system collects the next event.
  - Wait and verify that the run has actually stopped by watching the messages in the GUI log file window. Once it starts, the actual process to stop the run will take 5 or 10 seconds to complete.
  - Once you have confirmed that the run has stop you may return to the main GUI Menu by clicking the MAIN button at the bottom of the Collect Events sub-menu.
4. If you want to make another run you may do so after you have confirmed that the current run has stopped.

There is no need to repeat the steps under the Cold Start heading before making another data run. You only need to do the steps under the Cold Start heading once after the system power has been turn ON and the TCS and GUI programs have been started.

#### Stopping the DAQ-480 Programs:

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1. If you want to stop the DAQ-480 programs do the following steps:
  - In the main Gui Menu click the "Exit" button once.
  - A small confirmation window will pop-up. Click either Yes or No to indicate if you really want to exit.
  - After about 5 seconds the main GUI Menu window will disappear.
  - Wait about 5 or 10 more seconds and the GUI log file window will ask you to press a key to close this

window.

- Now, with only the TCS log file window left on the screen, click the X in its upper right-hand corner. Note that the TCS log file window may close itself.

## 2. Notes:

- If you are going to stop either the GUI or TCS programs then please stop both of them.
- Give the programs time to close down all of their connections and such before trying to restart them. Stopping these programs takes about 20 seconds.
- After stopping the programs you must run the steps under the Cold Start heading before you can make any more runs to collect events.