

Description of Near Detector Configuration Parameters

Last Updated: 24 July 2003

Crate Specific Parameters (master.config)

```
<crate0>
// Parameters specific to crate 0
// =====

// VME Access ModuleId - Crate specific
febSlot#I=16,18;
kperCtrl#I=0,16;
dynEnable#I=0xF;
vtmId#I=1;

minderSlots-16#I=3,4,5,6,7,8,9,10;
minderSlots-18#I=11,12,13,14,15,16,17,18;
</crate0>
```

febSlot#I – Front End Board Slot Number. This is a comma separated list of the slot numbers for each MASTER module in the MASTER Crate. It must **always** be kept up to date with any hardware changes.

kperCtrl#I – KEEPER Control. This refers to the fact that not every MASTER controls a KEEPER. This is a comma separated list that **must identically correlate to the febSlot list**. A value of zero implies that the corresponding entry in febSlot is a true MASTER and controls a KEEPER. A non-zero value implies that the corresponding entry in febSlot is a *puppet* MASTER (*i.e.* does not control a KEEPER) whose KEEPER is controlled by the MASTER in the given slot number. The given slot number must exist in febSlot and correspond to a true MASTER.

dynEnable#I – Dynode Enable. This is a bit-packed number indicating which of the four dynodes should be enabled for data taking (0=off; 1=on). There should be a dynEnable value for **each** MASTER module listed in febSlot.

vtmId#I – VTM Version Id. Not meaningful at this time, but must be present.

liTcalWidth#I – Window width for the Light Injection TCAL readout. When Light Injection is run by the external TCAL (see feeTrigger) any dynode trigger which arrives within a window of the TCAL pulse will be labeled

as an LI event. This parameter controls the width of that window. If not present it defaults to 0 (*i.e.* off).

liTcalDelay#I – Delay to the start of the window for the Light Injection TCAL readout. When Light Injection is run by the external TCAL (see feeTrigger) any dynode trigger which arrives within a window of the TCAL pulse will be labeled as an LI event. This parameter controls the delay of the start of that window from the arrival of TCAL. If not present it defaults to 0.

minderSlots-XX#I – MINDER Slots for MASTER XX. This is a comma separated list of the board id for each minder which is readout by the MASTER in slot XX. The MINDER board id is set by dip switches on the board and *should* always be set identically to the MINDER's slot number in the MINDER Crate. *For every MASTER listed in febSlot, there must be a corresponding minderSlots-XX Parameter.*

Run Specific Parameters (runType.config and <feeMode> in master.config)

<pre> <NearExpertRaw> runType#I1=323; feeModeNear#I1=1; feeTrigger#I1=-1; nCalPoints#I1=20; startCal#I1=-1; stopCal#I1=-1; ropMask#I=1,0,0,0; triggerMask#I1=0x0; tpMask#I1=1; bufferSwapFreq#S=50ms; execNumBursts#I1=15; execNumPerBurst#I1=2; delayBetweenBursts#S=1s; </NearExpertRaw> </pre>	<pre> <NormalData> runType#I1=301; feeModeFar#I1=2; feeModeNear#I1=2; feeTrigger#I1=0x13; sparsFile#S=/minos/config/sparsTable.dat; ropDebugFile#I1=0; ropMask#I=1,0,0,0; tpMask#I1=1; bufferSwapFreq#S=50ms; triggerMask#I1=0x01; nearSgatePeriod#S=1.1s; nearSgateDuration#S=10us; </NormalData> </pre>
---	--

feeModeNear#I1 – Front End Electronics Mode for the Near Electronics:

1. Calibrate Mode – Raw data is passed through the MASTER. No sparsification is applied and direct QIE information is available (range; adc; capId).
2. Data Mode – Output data is linearized through the MASTER's look-up-table. Sparsification is also applied.
3. Test Mode – A special test configuration in which no triggering or other operations are allowed.

This value also points to the specific feeMode section of master.config to pickup any additional configuration parameters. Notice that there is also a similar parameter for the far electronics in cases where both are operated simultaneously.

feeTrigger#I1 – Front End Electronics Trigger Mode. If this value is -1, it signifies that VME triggers will be used (normally for calibration or other special runs only). Otherwise, it represents a bit-packed value to enable the desired trigger sources (0=off; 1=on):

- bit 0 = Spill Gate
- bit 1 = Dynode Trigger
- bit 3 = Enable LI on TCAL
- bit 4 = External Trigger Source

sparsFile#S – Sparsification File. This should have the absolute path to the desired file of sparsification thresholds.

dynThresh#I1 – Dynode Threshold setting. This is the value to which the dynode threshold discriminators should be set (maximum = 0xFFFF).

nCalPoints#I1 – Number of Calibration Points. This is only useful when feeTrigger = -1. It specifies the number of points to be taken before the system goes into a standby mode in which no more data will be transmitted. While there is no maximum, values of 50 or larger have been known to crash the system due to excessive memory load.

startCal#I1 – Starting Value for the Current Injector during Calibration. A value of -1 implies that the current injector is disabled (*i.e.* pedestal). Maximum value is 0xFFFF. If this parameter is not present, it defaults to -1.

stopCal#I1 – Stopping Value for the Current Injector during Calibration. If this value is not equal to startCal, data will be taken at nCalPoints different values logarithmically spaced between the start and stop values. A value of -1 implies that the current injector is disabled (*i.e.* pedestal). If this parameter is not present, it defaults to the maximum (0xFFFF).

ropDebugFile#I1 – Read Out Processor Debug File Output. This enables a real-time text file with some useful debug information (0=no output; 1=output). The file is usually located in the minos/temp directory and is named ROP_X_output.dat where X refers to the ROP number. *Please use only for debugging since it writes across a networked link and can sometimes hang long enough to crash the DAQ.*

calDebug#I1 – Calibration Debug. This specifies whether or not the raw data during a calibration run is sent to the data stream. Under all conditions, data summaries are sent out (*i.e.* average and rms for each channel), however, sometimes offline analysis of the raw data may be necessary. (0 = no data; 1 = data)

Other existing configuration parameters are specific to controlling the DAQ, Trigger Processor, and Timing System. They should rightfully be left to those experts to configure them correctly.