

NAME

mcs-pci – Ortec MCS-pci Multichannel Scaler

DESCRIPTION

The Ortec MCS-pci Multichannel Scaler has count rates up to 150 MHz and up to 65,536 channels. Dwell times are selectable from 100 nanoseconds to 1300 seconds per channel. `spec` can control up to four MCS-pci modules.

FUNCTIONS

See the `mca` help file for a description of the `mca_get()`, `mca_put()` and other standard MCA-type functions available in `spec`.

`mca_par("clear")` – Clears the data memory of the MCS. –

`mca_par("run")` – Programs the MCS device with the appropriate parameters and starts acquisition. If `auto_clear` mode is set, clears the current data, otherwise, continues acquisition. The pass count is zeroed in both cases.

`mca_par("auto_clear" [, value])` – With no arguments, returns nonzero or zero to indicate whether auto-clear mode is set. Otherwise sets the mode to `value`. When auto-clear mode is set, the MCS data is cleared before data acquisition is started.

`mca_par("halt")` – Halts the current pass if acquisition is active. If entered a second time before the pass completes, the acquisition is terminated without completing the current pass.

`mca_par("dwell" [, value])` – With no arguments, returns the current dwell value. Otherwise, sets the dwell to `value`. A negative argument selects external dwell. Valid values are from 100e-9 to 1300 seconds.

`mca_par("npts" [, value])` – With no arguments, returns the current number of points or pass length. Otherwise, sets the pass length to `value`. Allowed values are from 4 to 65,536.

`mca_par("passes" [, value])` – With no arguments, returns the current preset passes value. Otherwise, sets the passes preset to `value`. A value of zero indicates no preset.

`mca_par("preset" [, value])` – The "preset" argument has the same function as "passes".

`mca_par("elapsed_passes")` – Returns the number of elapsed passes since acquisition started.

`mca_par("current_bin")` – Returns the current channel number of the current pass. The first channel is numbered zero.

`mca_par("input" [, which])` – Returns the string `sca` or `disc` to indicate which input is used as the signal source. String arguments of `sca` or `disc` for `which` select the setting.

`mca_par("impedance" [, value])` – Returns 50 or 1000 to indicate whether the discriminator input impedance is set to 50 ohms or 1 kohm. An argument of 50 or 1000 for `value` sets the input impedance. The default value is 1 kohm.

`mca_par("disc_level" [, value])` – With no arguments, returns the current discriminator threshold level. Otherwise sets the threshold to `value`. Valid values are from -1.6 to +3.0V with steps of 0.0015256V.

`mca_par("disc_edge" [, which])` – Returns the string `rising` or `falling` to indicate whether the discriminator is rising-edge or falling-edge sensitive. String arguments of `rising` or `falling` for `which` select the setting.

`mca_par("sca_low" [, value])` – With no arguments, returns the current lower-level threshold value of the SCA input. Otherwise sets the threshold to *value*. Valid values are from 0 and +10V with steps of 0.002442V.

`mca_par("sca_high" [, value])` – With no arguments, returns the current upper-level threshold value of the SCA input. Otherwise sets the threshold to *value*. Valid values are from 0 and +10V with steps of 0.002442V.

`mca_par("trigger" [, which])` – Returns the string internal or external to indicate whether new passes are started automatically or require an external trigger. The optional argument *which* can be either of the strings "internal" or "external" to select the trigger source.

`mca_par("trig_level" [, value])` – With no arguments, returns the current external channel-advance threshold level. Otherwise sets the threshold to *value*. Valid values are from -1.6 to +3.0V with steps of 0.0015256V.

`mca_par("reset")` – Stops acquisition, clears data memory and restores all MCS parameters to default values, as follows:

```
mcs_par("dwell", 1e-7)
mca_par("npts", 1000)
mca_par("passes", 0)
mca_par("input", "disc")
mca_par("impedance", 1000)
mca_par("disc_level", 1.4)
mca_par("disc_edge", "rising")
mca_par("sca_high", 6.5)
mca_par("sca_low", 1.2)
mca_par("trigger", "internal")
mca_par("trig_level", 1.4)
```

`mca_par("dump")` – Displays current MCS parameters.

`mca_par("chan#")` – Returns the contents of channel number #.

`mca_par("chan#", value)` – Set the contents of channel number # to *value*.