NAME

nicomp – Nicomp Model TC-100 Autocorrelator

DESCRIPTION

The Nicomp TC-100 Autocorrelator is selected in the config file as

`RS_TC100 =` *`/dev/ttyXX baud_rate`*

When running *edconf* (or the `config` macro), use the *MCAs* section of the *Devices* screen to select the Nicomp autocorrelator.

FUNCTIONS

The `mca_par()` function controls the correlator behavior as follows:

`mca_par("clock")` – returns the value of the current clock time parameter in microseconds.

`mca_par("clock",` *`value`*`)` – sets the clock time parameter. The units for *`value`* are microseconds. Valid clock times are of the form *X.XeY* where *X.X* ranges from 0.1 to 1.6 and *Y* ranges from 0 to 5. Values outside these bounds will be rounded to the closest allowed value. The new value takes effect on the next `run` command.

`mca_par("prescale")` – returns the value of the prescale factor.

`mca_par("prescale",` *`value`*`)` – sets the value of the prescale factor. Valid prescale values are from 1 to 99. The new value takes effect on the next `run` command.

`mca_par("dbase_mode")` – returns the state of the baseline mode. A return value of 1 means delayed baseline mode is in effect. A return value of 0 means delayed baseline mode is off.

`mca_par("dbase_mode", 1|0)` – sets the state of the baseline mode. A value of 1 turns on delayed-baseline mode. A value of 0 turns it off. The new mode takes effect on the next `run` command.

`mca_par("dbase")` – returns the value of the delayed baseline from the last data obtained using `mca_get()`.

`mca_par("cbase")` – returns the value of the calculated baseline from the last data obtained using `mca_get()`.

`mca_par("tcnts")` – returns the value of the total-counts monitor channel from the last data obtained using `mca_get()`.

`mca_par("pcnts")` – returns the value of the total-prescaled-counts monitor channel from the last data obtained using `mca_get()`.

`mca_par("rtime")` – returns the value of the run-time monitor channel from the last data obtained using `mca_get()` in seconds.

`mca_par("clear")` – clears the correlator.

`mca_par("run")` – sends the current clock-time, prescale and delayed-baseline parameters to the correlator and starts the correlator. The `tcount()` and `mcount()` functions also start the correlator.

`mca_par("halt")` – stops the correlator. The correlator is also halted when count intervals specified by `tcount()` or `mcount()` have elapsed, or when counting is aborted using a `^C`.

`mca_par("plot")` – reads off the real-time data plot from the running correlator. The data obtained is a very low resolution version of the correlation function.

`mca_get(`*`g, e`*`)` – reads the current data from the correlator, and stuffs the data into the data group *g* element *e*.

MACROS

`clr` – clears the correlator.

`run` – starts the correlator.

`halt` – stops the correlator.

`get` – reads the correlator data and plots it.

`clk [`*`clock_time`*`]` – sets the clock time. The macro prompts for a value if it is not given as an argument.

`pre [`*`prescale_factor`*`]` – sets the prescale factor. The macro prompts for a value if it is not given as an argument.

`dbase [0|1]` – sets delayed-baseline mode. The macro prompts for a value if it is not given as an argument.

`cbase` – prints the value of the calculated baseline from the last data read.

`ct [`*`count_time`*`]` – accumulates correlation function for *`count_time`* seconds. Plots the data at the end of count_time.

`uct [`*`count_time`*`]` – accumulates correlation function for *`count_time`* seconds. Updates a low resolution display of the correlation function while counting.

`qelsplot` – does a screen plot of the current data using labels appropriate for a correlation function.

`qelsfile` – saves the current data to the datafile. After the data points are saved, two lines of information are saved as

```
#U2 clock_time prescale cbase dbase
#U3 dbase_mode tcnts pcnts rtime
```

where the parameters are, in order: the clock time, the prescale factor, the values of the calculated and delayed baselines, a zero or one to indicate if the delayed baseline was used, the total counts, the total prescaled counts and the elapsed time from the correlator.