

**NAME**

trloctrl – Setup and control the TRLO II of a VULOM/TRIDI.

**SYNOPSIS**

**trloctrl** [**OPTION**]... [**COMMAND**]**EXPR**...

**DESCRIPTION**

The flexible FPGA trigger control TRLO II running on a VULOM/TRIDI can operate the full trigger logics of a nuclear physics experiment. The system includes the functionality of most logic NIM modules. It also has features for advanced monitoring, e.g. trigger-alignment recording as well as plenty of scalers and timer latches.

With around 500 setup register of 60 kinds and 200 signals of almost as many variations, efficient handling can be a daunting task. The *libtrlo\_ctrl* and *trlo\_ctrl* companion library and command-line interface program for control, monitoring and read-out help with this. Complex configurations can be loaded from setup files, while one-off commands for testing can be quickly issued from a shell.

Command-line arguments are executed in order as they are parsed.

**OPTIONS****--addr=A**

Select the VME address **A** of the module to handle. The address is given in hexadecimal. With **A** given as 'dummy', a plain memory space in RAM is used instead, for dry-running.

**--help** Display a short help text and exit.

**--clear-setup**

Set all setup registers to 0 (**WIRED\_ZERO** for multiplexer destinations).

**--print-config[=DEBUG]**

Print the configuration, i.e. all setup registers. Registers with default value (**0**, or **WIRED\_ZERO** for multiplexer destinations) are not shown.

**--trig-status[=INTERVAL]**

Print the status of the trigger system: scalers of the fast\_path coincidence builder and deadtime veto, and the trigger state machine. Print once, or every **INTERVAL** seconds.

**--mux-src-scalers[=NAME,ptn,n|reset]**

Dump/reset all MUX source scalers, or per requested **NAMES**. Show currently active pattern Every **n** s (default 1). Or reset.

**--config=FILE**

Load command file (to memory only, i.e. nothing is executed yet and affecting the module).

**--call=COMMAND**

Execute **COMMAND** from loaded configuration.

**--cmd="EXPR"**

Execute **EXPR** as an command.

- show[=TYPE,...]**  
[=setup,dest,src] List all available setup registers, multiplexer destinations and sources. The list can be limited by TYPE as 'setup', 'dest' and 'src'.
- tracer**  
Soft-scope for TRIG LMU inputs.
- sampler=ecl-in-N|ecl-io-in-N|lemo-in-N**  
Multi-hit timer-latch (stop with Ctrl+C).
- rec-mlatch=A,B,[diff]**  
Multi-hit timer-latch #A,#B,... record to stdout.
- debug[=N]**  
Debugging of tracer and sampler.
- addrtest**  
Run VME test to special segment in TRLO II; address readback.
- ramtest**  
Run VME test to special segment in TRLO II; RAM block write/read.
- rawread:ADDROFF**  
Read from VULOM at given VME offset. HEXadecimal address given with prefix 0x.
- rawwrite:ADDROFF=VALUE**  
Write to VULOM at given VME offset. HEXadecimal address and value given with prefix 0x.

## EXIT STATUS

0 after successfully operation, 1 on failure.

## EXAMPLES

Note the necessity to enclose arguments with parentheses in quotation marks, to prevent the shell from doing Bad Things (TM).

Set the TRLO II to generate triggers and respect the TRIMI deadtime:

```
trloctrl --addr=2 --clear-setup \
  "period(1)=10us" "TRIG_PENDING[1]=PULSER(1)" \
  "DEADTIME_IN(1)=TRIMI_TDT"
```

To monitor the counts of all multiplexer sources once per second:

```
trloctrl --mux-src-scalers
```

## AUTHOR

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**SEE ALSO****trimictrl(1), trloconf(5), vulomflash(1)**