

NAME

vulomflash – Handle FPGA firmware in VULOM/TRIDI flash memory.

SYNOPSIS

vulomflash **--addr=A** [**file.rbt**[,**comment.txt**]] [**COMMAND**]

DESCRIPTION

List, read and write firmware in the VULOM or TRIDI flash memory. The flash memory of a VULOM or TRIDI has 8 independent ranges. When powered on, the module will automatically load and start the FPGA firmware in range 0.

OPTIONS

--addr=A

Select the VME address **A** of the module to handle. The address is given in hexadecimal.

--help Display a short help text and exit.

FIRMWARE FILE

The firmware to be programmed or verified is loaded from a .rbt file, given on the command line. A plain text file can be stored in a comment region of the flash range together with the firmware for easy identification. *vulomflash* mandates the use of such a file (use /dev/null to force an empty file). For easier invocation, if the name of the comment file is not specified, *vulomflash* will try trlo_compile_XXX.txt, based on the .rbt filename, if named with a known *prefix_XXX.rbt*.

COMMANDS

One command can be given for *vulomflash* to execute:

--read For test purposes, read from the module at VME offset BASE+0x0 (FPGA space), and BASE+RANGE_REG (CPLD space).

If the module is running TRLO II, the four high hexadecimal values will be a part of the version MD5SUM. With a newer TRLO II firmware, the lower will be the TRIMI (TRIVA mimic) status register.

--readprogs[=full]

Read and print the comment field contents for all ranges of the flash memory. Unless **full** is given, comment fields for TRLO II firmwares are summarised on one line per item.

--restart=N

Instruct the module to load the firmware of flash range **N** into the FPGA and restart the FPGA.

--verify=N

Compare the content of flash range **N** with the loaded .rbt file.

--extract=N,file

Dump the content of flash range **N** into an .rbt-like **file**. (Some editing is required if the content are to be used for writing.)

--prog=N

Write the content of the loaded .rbt file into flash range **N**.

Programming will only be performed if the content of the flash differs from the new content. The flash range is automatically erased.

--erase=N

Erase the contents of flash range **N**.

EXIT STATUS

0 after successfully operation, 1 on failure.

EXAMPLES

vulomflash --addr=9 --readprogs

Check the stored firmwares in a module at VME address 0x09.

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Based on the original erase and flash programs written by Wolfgang Ott.

SEE ALSO

trloctrl(1), **trimictrl(1)**

BUGS

Some VULOM4B and TRIDI1 modules do not restart (i.e. load) firmware into the FPGA from non-0 flash memory ranges. This can be fixed by a CPLD firmware upgrade.