NAME

altera_avgen - driver for generic Altera Avalon-bus-attached, memory-mapped devices

SYNOPSIS

device altera_avgen

In */boot/device.hints*:
hint.altera_avgen.0.at="nexus0"
hint.altera_avgen.0.maddr=0x7f00a000
hint.altera_avgen.0.msize=20
hint.altera_avgen.0.width=4
hint.altera_avgen.0.fileio="rw"
hint.altera_avgen.0.devname="berirom"

DESCRIPTION

The **altera_avgen** device driver provides generic support for memory-mapped devices on the Altera Avalon bus. *device.hints* entries configure the address, size, I/O disposition, and */dev* device node name that will be used. The open(2), read(2), write(2), and mmap(2) system calls (and variations) may be used on **altera_avgen** device nodes, subject to constraints imposed using *device.hints* entries. Although reading and writing mapped memory is supported, **altera_avgen** does not currently support directing device interrupts to userspace.

A number of *device.hints* sub-fields are available to configure **altera_avgen** device instances:

maddr base physical address of the memory region to export; must be aligned to width

msize length of the memory region export; must be aligned to width

width Granularity at which read(2) and write(2) operations will be performed. Larger requests will be broken down into width -sized operations; smaller requests will be rejected. I/O operations must be aligned to width.

fileio allowed file descriptor operations; r authorizes read(2); w authorizes write(2).

mmapio
allowed mmap(2) permissions; w authorizes PROT_WRITE; r authorizes PROT_READ; x authorizes PROT_EXEC.

devname
specifies a device name relative to */dev*.

devunit specifies a device unit number; no unit number is used if this is unspecified.

SEE ALSO

mmap(2), open(2), read(2), write(2)

HISTORY

The **altera_avgen** device driver first appeared in FreeBSD 10.0.

AUTHORS

The **altera_avgen** device driver and this manual page were developed by SRI International and the University of Cambridge Computer Laboratory under DARPA/AFRL contract (FA8750-10-C-0237) ("CTSRD"), as part of the DARPA CRASH research programme. This device driver was written by Robert N. M. Watson.

BUGS

altera_avgen is intended to support the writing of userspace device drivers; however, it does not permit directing interrupts to userspace, only memory-mapped I/O.

altera_avgen supports only a nexus bus attachment, which is appropriate for system-on-chip busses such as Altera’s Avalon bus. If the target device is off of another bus type, then additional bus attachments will be required.