

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.