NAME

ltc430x - driver for LTC4305 and LTC4306 I2C mux chips

SYNOPSIS

To compile this driver into the kernel, place the following line in your kernel configuration file:

device ltc430x

Alternatively, to load the driver as a module at boot time, place the following line in loader.conf(5):

ltc430x_load="YES"

DESCRIPTION

The **ltc430x** driver supports the LTC4305 and LTC4306 I2C bus multiplexer (mux) chips. It automatically connects an upstream I2C bus to one of several downstream buses as needed when slave devices on the downstream buses initiate I/O. More information on the automatic switching behavior is available in iicmux(4).

FDT CONFIGURATION

On an fdt(4) based system, an **ltc430x** device node is defined as a child node of its upstream i2c bus. The children of the **ltc430x** node are additional i2c buses, which will have their own i2c slave devices described in their child nodes.

The **ltc430x** driver conforms to the standard i2c/i2c-mux-ltc4306.txt bindings document, except that the following optional properties are not currently supported and will be ignored if present:

- enable-gpios
- gpio-controller
- #gpio-cells
- ltc,downstream-accelerators-enable
- ltc,upstream-accelerators-enable

In addition, the following additional property is supported:

freebsd,ctlreg2

> A value to store into the chip's control register 2 during initialization. Consult the chip datasheet for the meaning of the various bits in the register.

HINTS CONFIGURATION

On a device.hints(5) based system, the following hints are required:

hint.ltc430x.<unit>.at
> The upstream iicbus(4) the **ltc430x** instance is attached to.

hint.ltc430x.<unit>.addr
> The slave address of the **ltc430x** instance on the upstream bus.

hint.ltc430x.<unit>.chip_type
> The type of chip the driver is controlling. Valid values are "ltc4305" and "ltc4306".

The following hints are optional:

hint.ltc430x.<unit>.ctlreg2
> A value to store into the chip's control register 2 during initialization. Consult the chip datasheet for the meaning of the various bits in the register. This hint is optional; when missing, the driver does not update control register 2.

hint.ltc430x.<unit>.idle_disconnect
> Whether to disconnect all downstream busses from the upstream bus when idle. If set to zero, the most recently used downstream bus is left connected to the upstream bus after IO completes. Any non-zero value causes all downstream busses to be disconnected when idle. This hint is optional; when missing, the driver behaves as if it were zero.

When configured via hints, the driver automatically adds an iicbus instance for every downstream bus supported by the chip. There is currently no way to indicate used versus unused downstream channels.

SEE ALSO
> iicbus(4), iicmux(4)

HISTORY
> The **ltc430x** driver first appeared in FreeBSD 13.0.