NAME

ti_adc - TI AM3XXX analog to digital converter driver

SYNOPSIS

device ti_adc

DESCRIPTION

The **ti_adc** driver provides access to the AIN (analog inputs) on am3xxx SoCs.

It provides raw readings of the converted values for each analog inputs.

The access to **ti_adc** data is made via the sysctl(8) interface:

```
dev.ti_adc.0.%desc: TI ADC controller
dev.ti_adc.0.%driver: ti_adc
dev.ti_adc.0.%pnpinfo: name=adc@44E0D000 compat=ti,adc
dev.ti_adc.0.%parent: simplebus0
dev.ti_adc.0.clockdiv: 2400
dev.ti_adc.0.ain.0.enable: 0
dev.ti_adc.0.ain.0.open_delay: 0
dev.ti_adc.0.ain.0.samples_avg: 0
dev.ti_adc.0.ain.0.input: 0
dev.ti_adc.0.ain.1.enable: 0
dev.ti_adc.0.ain.1.open_delay: 0
dev.ti_adc.0.ain.1.samples_avg: 0
dev.ti_adc.0.ain.1.input: 0
dev.ti_adc.0.ain.2.enable: 0
dev.ti_adc.0.ain.2.open_delay: 0
dev.ti_adc.0.ain.2.samples_avg: 0
dev.ti_adc.0.ain.2.input: 0
dev.ti_adc.0.ain.3.enable: 0
dev.ti_adc.0.ain.3.open_delay: 0
dev.ti_adc.0.ain.3.samples_avg: 0
dev.ti_adc.0.ain.3.input: 0
dev.ti_adc.0.ain.4.enable: 0
dev.ti_adc.0.ain.4.open_delay: 0
dev.ti_adc.0.ain.4.samples_avg: 0
dev.ti_adc.0.ain.4.input: 0
dev.ti_adc.0.ain.5.enable: 0
dev.ti_adc.0.ain.5.open_delay: 0
```

```
dev.ti_adc.0.ain.5.samples_avg: 0
dev.ti_adc.0.ain.5.input: 0
dev.ti_adc.0.ain.6.enable: 1
dev.ti_adc.0.ain.6.open_delay: 0
dev.ti_adc.0.ain.6.samples_avg: 4
dev.ti_adc.0.ain.6.input: 2308
dev.ti_adc.0.ain.7.enable: 1
dev.ti_adc.0.ain.7.open_delay: 0
dev.ti_adc.0.ain.7.samples_avg: 0
dev.ti_adc.0.ain.7.input: 3812
```

On Beaglebone-black the analog input 7 is connected to the 3V3B rail through a voltage divisor (2:1). The 3V3B voltage rail comes from the TL5209 LDO regulator which is limited to 500mA maximum.

Global settings:

dev.ti_adc.0.clockdiv Sets the ADC clock prescaler. The minimum value is 10 and the maximum is 65535. The ADC clock is based on CLK_M_OSC (24Mhz) / clockdiv. This gives a maximum of ~2.4Mhz for the ADC clock and ~10Khz for the default setting (clockdiv = 2400).

Settings per input:

dev.ti_adc.0.ain.%d.enable Enable the conversion for the input. Each input should be individually enabled before it can be used. When all the inputs are disabled, the ADC is turned off.

dev.ti_adc.0.ain.%d.open_delay Sets the number of ADC clock cycles to wait after applying the input configuration and before start the ADC conversion.

dev.ti_adc.0.ain.%d.samples_avg Sets the number of samples average used on each input, it can be set to 0 (no samples average), 2, 4, 8, or 16.

dev.ti_adc.0.ain.%d.input Is the converted raw value of the voltage applied on the analog input. It is made of a 12 bit value (0 ~ 4095).

SEE ALSO

sysctl(8)

HISTORY

The **ti_adc** driver first appeared in FreeBSD 10.1.

AUTHORS

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