

TI EMIF SDRAM Controller Driver

Author

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Location

driver/memory/emif.c

Supported SoCs:

TI OMAP44xx TI OMAP54xx

Menuconfig option:

Device Drivers

Memory devices

Texas Instruments EMIF driver

Description

This driver is for the EMIF module available in Texas Instruments SoCs. EMIF is an SDRAM controller that, based on its revision, supports one or more of DDR2, DDR3, and LPDDR2 SDRAM protocols. This driver takes care of only LPDDR2 memories presently. The functions of the driver includes re-configuring AC timing parameters and other settings during frequency, voltage and temperature changes

Platform Data (see include/linux/platform_data/emif_plat.h)

DDR device details and other board dependent and SoC dependent information can be passed through platform data (struct `emif_platform_data`)

- DDR device details: 'struct `ddr_device_info`'
- Device AC timings: 'struct `lpddr2_timings`' and 'struct `lpddr2_min_tck`'
- Custom configurations: customizable policy options through 'struct `emif_custom_configs`'
- IP revision
- PHY type

Interface to the external world

EMIF driver registers notifiers for voltage and frequency changes affecting EMIF and takes appropriate actions when these are invoked.

- `freq_pre_notify_handling()`
- `freq_post_notify_handling()`
- `volt_notify_handling()`

Debugfs

The driver creates two debugfs entries per device.

- `regcache_dump` : dump of register values calculated and saved for all frequencies used so far.
- `mr4` : last polled value of MR4 register in the LPDDR2 device. MR4 indicates the current temperature level of the device.