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/**
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 */

#ifndef __IMX219_H__
#define __IMX219_H__

#include <linux/ioctl.h>  /* For IOCTL macros */
#include <media/nvc.h>
#include <media/nvc_image.h>

#define IMX219_IOCTL_SET_MODE           _IOW('o', 1, struct imx219_mode)
#define IMX219_IOCTL_GET_STATUS         _IOR('o', 2, __u8)
#define IMX219_IOCTL_SET_FRAME_LENGTH   _IOW('o', 3, __u32)
#define IMX219_IOCTL_SET_COARSE_TIME    _IOW('o', 4, __u32)
#define IMX219_IOCTL_SET_GAIN           _IOW('o', 5, struct imx219_gain)
#define IMX219_IOCTL_GET_FUSEID         _IOR('o', 6, struct nvc_fuseid)
#define IMX219_IOCTL_SET_GROUP_HOLD     _IOW('o', 7, struct imx219_ae)
#define IMX219_IOCTL_GET_AFDAT            _IOR('o', 8, __u32)
#define IMX219_IOCTL_SET_POWER       _IOW('o', 20, __u32)
#define IMX219_IOCTL_GET_FLASH_CAP  _IOR('o', 30, __u32)
#define IMX219_IOCTL_SET_FLASH_MODE _IOW('o', 31, struct imx219_flash_control)

/* TODO: revisit these values for IMX219 */
#define IMX219_FRAME_LENGTH_ADDR_MSB            0x0160
#define IMX219_FRAME_LENGTH_ADDR_LSB            0x0161
#define IMX219_COARSE_TIME_ADDR_MSB             0x015a
#define IMX219_COARSE_TIME_ADDR_LSB             0x015b
#define IMX219_GAIN_ADDR                        0x0157

#define IMX219_FUSE_ID_SIZE     6
#define IMX219_FUSE_ID_STR_SIZE (IMX219_FUSE_ID_SIZE * 2)

struct imx219_mode {
    int xres;
    int yres;
    __u32 frame_length;
    __u32 coarse_time;
    __u32 gain;
};

struct imx219_ae {
    __u32 frame_length;
    __u8  frame_length_enable;
    __u32 coarse_time;
    __u8  coarse_time_enable;
    __u32 gain;
    __u8  gain_enable;
};

struct imx219_flash_control {
    u8 enable;
    u8 edge_trig_en;
    u8 start_edge;
    u8 repeat;
    u16 delay_frm;
};

#ifdef __KERNEL__
struct imx219_power_rail {
    struct regulator *dvdd;
    struct regulator *avdd;
    struct regulator *iovdd;
    struct regulator *vdd_af;
```

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};

struct imx219_platform_data {
    struct imx219_flash_control flash_cap;
    const char *mclk_name; /* NULL for default default_mclk */
    int (*power_on)(struct imx219_power_rail *pw);
    int (*power_off)(struct imx219_power_rail *pw);
};
#endif /* __KERNEL__ */

#endif  /* __IMX219_H__ */
```