



ISL29035 Device Driver Integration Guide

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ISL29035 ALS Sensor Driver Integration Guide

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1 Introduction

This document describes the device driver integration of “ISL29035 ALS sensor driver” with android and Linux kernel for panda-board, which is developed by VVDN Technologies for Intersil Corporation.

This Document is made for the reference of

- Product managers and QAD at VVDN & Intersil to understand the device driver integration.
- Engineering Team at VVDN for integrating and testing the device driver for panda-board.

2 Extract the Driver package

1. ISL29035.c
2. ISL29035.h

3 Copying driver files

1. Copy the ISL29035.c to kernel/driver/input/misc/ directory in the Linux kernel for panda-board

```
# cp ISL29035.c kernel/drivers/input/misc/
```

2. Copy the ISL29035.h to standard header file path kernel/include/linux/ in the Linux kernel for panda-board

```
# cp ISL29035.h kernel/include/linux/
```

4 Adding the driver to kernel build system

4.1 Adding entry in Kconfig

1. Change directory to kernel/drivers/input/misc inside the Linux kernel source code for panda-board.

```
# cd kernel/driver/input/misc
```

2. Open the Kconfig in the current directory with any editor of choice
3. Go to the end of file and add the following configuration just before the #endif

```
config INPUT_ISL29035
    bool "ISL29035 I2C driver for ALS sensor"
    default y
    depends on I2C=y
    help
        This is a device driver for Intersil Corporation's ISL29035
        ALS sensor.
```

4. Save and exit.

Note: This step will add our sensor entry in the kernel's configuration menu. Please deselect this entry using kernel's menuconfig system if its compilation with panda-board is not required.

4.2 Adding entry in Makefile

1. Change directory to kernel/driver/input/misc inside the Linux kernel source code for panda-board.
cd kernel/driver/input/misc
2. Open the Makefile in the current directory with any editor of choice.
3. Go to the end of file and add the following.

```
obj-$(CONFIG_INPUT_ISL29035) += ISL29035.o
```

Note: After this step the ISL29035 sensor driver is integrated with kernel build system.

4.3 Add driver and device information in board file

1. Change directory to kernel/arch/arm/mach-omap2 inside the Linux kernel source code for panda-board.

```
# cd kernel/arch/arm/mach-omap2
```

2. Edit the file board-omap4panda.c under current directory with editor of choice. Do Steps 3 to 5 to edit the file.
3. Include the sensor driver header file at the beginning of file along with other include files

```
#include <linux/ISL29035.h>
```

4. Add this global structure declaration to the file

```
Static struct ISL29035_platform_data ISL29035_data = {  
    .gpio_irq = 39 /* GPIO pin number to be assigned as interrupt  
                    For interrupt mode only, otherwise leave as -1 */  
};  
  
static struct i2c_board_info __initdata ISL29035_info[] = {  
    {  
        I2C_BOARD_INFO("ISL29035", ISL29035_I2C_ADDR),  
    },  
};
```

```
.platform_data = &ISL29035_data,  
},  
};
```

5. Inside function "omap4_panda_i2c_init" add the following code to register ISL29035 device with i2c core.

```
omap_register_i2c_bus(4,400,ISL29035_info,ARRAY_SIZE(ISL29035_info));
```

6. Save and exit

Now the sensor driver is integrated with Linux kernel for panda-board.

NOTE:

1. Please make sure you use one sensor device at a time for GPIO 39 interrupt functionality.
2. Comment the *omap_register_i2c_bus* for other sensor devices of same slave address on same bus.
3. Use *gpio_irq* = -1 to disable the interrupt functionality for unselected device.
4. Select ISL29035 at a time from menuconfig. Two or more selection may lead to an I2C slave conflict.