Application Programmer's Guide

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Android Application Programmer's Guide for ISL29038 sensor device driver

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1 Introduction

This document describes Application software development guide for "ISL29038 sensor Device Driver" which is developed by VVDN for Intersil Corporation.

This Application Programmer's Guide is made for the reference of

- Product managers and QAD at VVDN & Intersil to understand the interface between android application and the sensor device driver.
- Engineering Team at VVDN for System Architecture, Design and development of android application software.
- System Integration and Verification teams at VVDN / Intersil for SW validation.

2 Scope of the document

This document describes the methods by which the android application can interact with the ISL29038 sensor device driver.

3 Android application interface to ISL29038 Sensor Driver

The android application interacts with the ISL29038 device driver in the Linux/Android kernel using the ***sysfs*** files exported by the device driver.

The android application reads/writes a string from/to the **sysfs** file to interact with the ISL29038 sensor. The following table lists the **sysfs** files exported by the ISL29038 driver and valid input/output values.

Sysfs path: **`/sys/intersil/isl29038/`**

SL No.	SYSFS FILE	Access	DESCRIPTION	VALID R/W VALUES
1.	als_mode	R/W	als_mode sysfs is used to enable/disable the ALS mode operation of sensor device	enable disable
2.	als_range	R/W	Get / Set sensing range	125 250 2000 4000
3.	als_data	R	Get ALS digital data	0 – 4095
4.	prox_ambir_data	R	Get proximity IR data value	0 – 128
5.	als_persist	R/W	Get/Set the interrupt persistency	1 / 2 / 4 / 8
6.	als_high_thres	R/W	Get/Set high ALSIR threshold value	0 – 4095
7.	als_low_thres	R/W	Get/Set the Low ALSIR threshold value	0 – 4095
8.	prox_ht	R/W	Get/Set the High Proximity Threshold value	0 – 255
9.	prox_lt	R/W	Get/Set the Low Proximity Threshold value	0 – 255
10.	prox_data	R	Get proximity data value	0 – 255
11.	prox_mode	R/W	enable or disable the proximity mode	enable disable

12.	p_sleep_uS	R/W	Get/Set the Proximity Sleep time in micro Second. The values are processed in microsecond to support multiple architecture, but internally converted to millisecond in driver	400000 100000 50000 25000 12500 6250 3125 0
13.	ir_curr_uA	R/W	Get / Set current IR value in uA. The values are processed in micro-Ampere to support multiple architecture, but internally converted to millisecond in driver	31250 62500 125000 250000
14.	alsir_compensation	R/W	Get/Set the alsir compensation	0 – 31
15.	dev_status	R	Get the current device status	Normal Operation Brown-Out Detected
16.	intr_algo	R/W	Get/Set the interrupt Algorithm	hysteresis window
17.	prox_offset_comp	R/W	Get/Set the proximity interrupt compensation	0 – 15
18.	prox_persist	R/W	Get/Set the proximity interrupt persistency	1 / 2 / 4 / 8
19.	prx_ambir_stat	R	Get the status of the proximity device	Prox-Washout Normal Operation
20.	reset	W	Reset the device to default	38

Open the above **sysfs** files in the android application and read/write valid values as shown in above table for interaction with ISL29038 sensor device driver.

Note:

1. The valid read/write values are case sensitive; please use the exact write values.
2. Reading from a **sysfs** file returns number of bytes read in case of successful read else returns -1 on failure.
3. Writing to a **sysfs** file returns number of bytes written else returns -1 on failure.