

al3000a i2c light sensor

found in Lenovo Thinkpad Tablet

`0x0345668 [0, 0]`

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alternative driver, different from one in 2.6 kernel, contains some registrar names but not full description of values:

https://github.com/vhda/linux_kernel_TF101/blob/master/drivers/hwmon/al3000a.c

```
#define AL3000A_REG_CONFIGURATION 0x00
#define AL3000A_REG_TIMING_CONTROL 0x01
#define AL3000A_REG_ALS_CONTROL 0x02
#define AL3000A_REG_INTERRUPT_STATUS 0x03
#define AL3000A_REG_DATA 0x05
#define AL3000A_REG_ALS_WINDOW 0x08

#define AL3000A_MODE_POWER_UP 0
#define AL3000A_MODE_POWER_DOWN 2
#define AL3000A_MODE_RESET 3

#define AL3000A_OPERATION_ACTIVE 0
#define AL3000A_OPERATION_IDLE 3
```

i2c usage

kernel 2.6 driver:

<https://github.com/dpavlin/linux/blob/thinktabletopensource-2.6.36/drivers/misc/al3000a.c>

```
# al_init

//F/W Initial Flow
//Power Down & Idle
ret = i2c_smbus_write_byte_data(client, 0x00, 0x0B);

// Integration Cycle = 4; Integration Time = 100ms;
// Interrupt trigger when lux detection has changed 4 times
// at 100ms intervals.
ret = i2c_smbus_write_byte_data(client, 0x01, 0x11);

//AL3000A ADC resolution = 64 levels; Low lux threshold = 0
ret = i2c_smbus_write_byte_data(client, 0x02, 0xA0);

//ALS Window Loss = 0
//It isn't covered by shell so no window loss, need to modify at DVT
ret = i2c_smbus_write_byte_data(client, 0x08, 0x00);
```

```

//Read Data to clear INT Flag
ret = i2c_smbus_read_i2c_block_data(client, 0x05, 1, &data);

# ls_enable

//Read Data to clear INT Flag
i2c_smbus_read_i2c_block_data(client, 0x05, 1, &data);
//Power Up & Enable ALS
i2c_smbus_write_byte_data(client, 0x00, 0x00);

# ls_disable

//Power Down & Idle
i2c_smbus_write_byte_data(client, 0x00, 0x0B);

```

re-create in shell

```

root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x00
root@tegra20:/home/dpavlin# i2cset -y 0 0x1c 0x00 0 b
root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x10
root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x10
root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x1f
root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x1f
root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x10
root@tegra20:/home/dpavlin# i2cget -y 0 0x1c 0x05 b
0x10
root@tegra20:/home/dpavlin# i2cdump -y 0 0x1c
No size specified (using byte-data access)
   0  1  2  3  4  5  6  7  8  9  a  b  c  d  e  f      0123456789abcdef
02: 00 11 a0 01 4a 01 00 00 00 ff ff ff ff ff ff ff  .???J?.....

```