

# AAEON

## PTN3460 Backlight

### Linux Driver User Guide

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Most Confidential	
Confidential	
Internal	
Public	V

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<b>Revision History</b>	<b>3</b>
<b>Chapter 1. Supported Linux OS</b>	<b>4</b>
Check OS version	4
Check OS kernel version	4
Setup environment	4
Check I2C Driver (System access PTN3460 via I2C)	5
<b>Chapter 2. Install PTN3460 Backlight drive</b>	<b>6</b>
Step 1. Check the I2C (SMBus) port	6
Step 2. Copy the archive file to the home folder	6
Step 3. Unzip the zip file	6
Step 4. Install ptn3460 backlight driver	7
Step 5. Reboot system	7
<b>Chapter 3. Control the backlight</b>	<b>8</b>
1. Check LVDS backlight node	8
2. Control LVDS brightness	8
a. LVDS brightness OFF:	8
b. LVDS brightness ON:	8

## Revision History

Revision Number	Description	Revision Date
V1.0	Initial Release	2020/07/21
V1.1	Fix typos/grammar and adjust wording	2020/08/13
V1.2	Support PTN3460 at I2C slave 0xC0	2020/12/01
V1.3	Support Ubuntu 16.04.7	2020/12/03
V1.4	Support driver auto-detect on I2C/SMBus	2021/03/25
V1.5	Support Ubuntu 20.04.1 (kernel: 5.8.0) Support Ubuntu 21.04 (kernel: 5.11.0)	2021/05/14
V1.6	Support multiple ptn3460	2021/06/03
V1.7	This version only supports Ubuntu 22.04.4 operating system	2024/05/27
V1.8	Support Ubuntu Ubuntu 24.04.1	2024/12/02

# Chapter 1. Supported Linux OS

## Supported Linux Version

- Ubuntu 24.04.1/6.8.0-41-generic, or above.

## Check OS version

```
$ lsb_release -a
```

```
$ lsb_release -a  
No LSB modules are available.  
Distributor ID: Ubuntu  
Description:   Ubuntu 24.04.1 LTS  
Release:       24.04  
Codename:      noble
```

## Check OS kernel version

```
$ uname -r  
6.8.0-41-generic
```

## Setup environment

```
$ sudo apt update  
$ sudo apt install -y make gcc i2c-tools libi2c-dev
```

## Check I2C Driver (System access PTN3460 via I2C)

Please remove i2c-i801 from /etc/modprobe.d/blacklist.conf and reboot the system.

```
$ uname -r  
6.8.0-41-generic
```

\$sudo vi /etc/modprobe.d/blacklist.conf  
(Please modify blacklist.conf as follows)

```
# blacklist i2c_i801
```

Then reboot system

```
$ sudo reboot
```

## Chapter 2. Install PTN3460 Backlight drive

In the following example, it is operated with v1.6.0.2 driver, and the driver file name is:  
aaeon\_ptn3460\_bl\_v1.6.0.2.zip

### Step 1. Check the I2C (SMBus) port

```
$ sudo i2cdetect -l | sort
i2c-0 smbus    SMBus I801 adapter at f040    SMBus adapter
i2c-1 i2c      i915 gmbus dpc                I2C adapter
i2c-2 i2c      i915 gmbus dpb                I2C adapter
i2c-3 i2c      i915 gmbus dpd                I2C adapter
i2c-4 i2c      DPDDC-A                      I2C adapter
i2c-5i2c      DPDDC-B                      I2C adapter
i2c-6 i2c      DPDDC-C                      I2C adapter
```

Get the SMBus index. It is i2c-0 in this demo.

### Step 2. Copy the archive file to the home folder

```
sdd2@sdd2 $ cp aaeon_ptn3460_bl_V1.6.0.2.zip ~/
```

### Step 3. Unzip the zip file

```
sdd2@sdd2: $ cd ~/
sdd2@sdd2: $ unzip aaeon_ptn3460_bl_V1.6.0.2.zip
```

## Step 4. Install ptn3460 backlight driver

```
$ cd ~/aaeon_ptn3460_bl_V1.6.0.2
$ sudo ./install.sh
-----
Install PTN3460 Backlight Driver.
-----
Check the old driver and unload it.
Unload ptn3460
Build the module and install.
warning: the compiler differs from the one used to build the kernel
The kernel was built by: x86_64-linux-gnu-gcc-13 (Ubuntu 13.2.0-23ubuntu4) 13.2.0
You are using:          gcc-13 (Ubuntu 13.2.0-23ubuntu4) 13.2.0
Skipping BTF generation for
/home/test/Desktop/linux_dirver/aaeon_ptn3460_bl_V1.6.0.2/driver/ptn3460.ko due to
unavailability of vmlinux
Config driver module...
Update driver.
Load module.
Installation Completed. Please reboot to apply the driver.
```

## Step 5. Reboot system

```
$ sudo reboot
```

## Chapter 3. Control the backlight

### 1. Check LVDS backlight node

The directory name will be ptn3460\_bl-X-0020/ or ptn3460\_bl-X-0060/, where X is the bus number and 0020 and 0060 is the I2C slave address of ptn3460.

```
$ cd /sys/class/backlight
$ ls -l | grep ptn3460
lrwxrwxrwx 1 root root 0 六 3 20:06 ptn3460_bl-0-0020 ->
../../../../devices/pci0000:00/0000:00:1f.1/i2c-0/0-0020/backlight/ptn3460_bl-0-0020
```

### 2. Control LVDS brightness

- a. LVDS brightness OFF:  
(Usage: echo [val (0)] > /sys/class/backlight/ptn3460\_bl-0-0020)

```
$ cd /sys/class/backlight/ptn3460_bl-0-0020
$ sudo su
# echo 0 > brightness
```

- b. LVDS brightness ON:  
(Usage: echo [val (1~255)] > /sys/class/backlight/ptn3460\_bl-0-0020)

```
# echo 128 > brightness
```