

测试项

get device info

- input

```
v4l2-ctl --all --device=/dev/video0
```

- output

```
Driver Info:
  Driver name      : sunxi-vin
  Card type        : sunxi-vin
  Bus info         :
  Driver version   : 1.1.0
  Capabilities     : 0x85201000
    Video Capture Multiplanar
    Read/Write
    Streaming
    Extended Pix Format
    Device Capabilities
  Device Caps      : 0x05201000
    Video Capture Multiplanar
    Read/Write
    Streaming
    Extended Pix Format
Media Driver Info:
  Driver name      : sunxi-vin-media
  Model            : Allwinner Vin
  Serial           :
  Bus info         :
  Media version    : 5.4.61
  Hardware revision: 0x00000000 (0)
  Driver version   : 5.4.61
Interface Info:
  ID               : 0x03000007
  Type             : V4L Video
Entity Info:
  ID               : 0x00000006 (6)
  Name             : vin_video0
  Function         : V4L2 I/O
  Pad 0x01000009   : 0: Sink
    Link 0x02000023: from remote pad 0x10000005 of entity 'vin_cap.0':
Data, Enabled
Priority: 2
Video input : 0 (sunxi-vin: ok)
Format Video Capture Multiplanar:
  Width/Height     : 800/600
  Pixel Format      : 'NV21' (Y/CrCb 4:2:0)
  Field            : None
  Number of planes  : 1
  Flags            :
  Colourspace      : JPEG
```

Transfer Function : Default
 YCbCr/HSV Encoding: Default
 Quantization : Default
 Plane 0 :
 Bytes per Line : 1200
 Size Image : 729600
 Selection Video Capture: crop, Left 0, Top 0, Width 800, Height 600, Flags:
 Selection Video Capture: crop_bounds, Left 0, Top 0, Width 800, Height 600,
 Flags:
 Selection Video Output: crop, Left 0, Top 0, Width 800, Height 600, Flags:
 Selection Video Output: crop_bounds, Left 0, Top 0, Width 800, Height 600,
 Flags:

User Controls

brightness 0x00980900 (int)	: min=-128 max=128 step=1
default=0 value=0 flags=slider	
contrast 0x00980901 (int)	: min=-128 max=128 step=1
default=0 value=0 flags=slider	
saturation 0x00980902 (int)	: min=-256 max=512 step=1
default=0 value=0 flags=slider	
hue 0x00980903 (int)	: min=-180 max=180 step=1
default=0 value=0 flags=slider	
white_balance_automatic 0x0098090c (bool)	: default=1 value=1
exposure 0x00980911 (int)	: min=1 max=1048576 step=1
default=1 value=0 flags=volatile	
gain_automatic 0x00980912 (bool)	: default=1 value=1
error 22 getting ctrl Gain	
horizontal_flip 0x00980914 (bool)	: default=0 value=0
vertical_flip 0x00980915 (bool)	: default=0 value=0
power_line_frequency 0x00980918 (menu)	: min=0 max=3 default=3
value=3	
	0: Disabled
	1: 50 Hz
	2: 60 Hz
	3: Auto
hue_automatic 0x00980919 (bool)	: default=1 value=1
white_balance_temperature 0x0098091a (int)	: min=2800 max=10000
step=1 default=6500 value=6500	
sharpness 0x0098091b (int)	: min=0 max=1000 step=1
default=0 value=0 flags=slider	
chroma_agc 0x0098091d (bool)	: default=1 value=1
color_effects 0x0098091f (menu)	: min=0 max=15 default=0
value=0	
	0: None
	1: Black & White
	2: Sepia
	3: Negative
	4: Emboss
	5: Sketch
	6: Sky Blue
	7: Grass Green
	8: Skin Whiten
	9: Vivid
	10: Aqua

```

11: Art Freeze
12: Silhouette
13: Solarization
14: Antique
15: Set Cb/Cr
    brightness_automatic 0x00980920 (bool) : default=1 value=1
    band_stop_filter 0x00980921 (int) : min=0 max=1 step=1
default=1 value=1
    illuminator_1 0x00980925 (bool) : default=0 value=0
    illuminator_2 0x00980926 (bool) : default=0 value=0
    autofocus_initial 0x00981952 (button) : flags=write-only,
execute-on-write
    autofocus_release 0x00981953 (button) : flags=write-only,
execute-on-write
    gsensor_rotaton 0x00981954 (int) : min=-180 max=180 step=90
default=0 value=0
    take_picture 0x00981956 (int) : min=0 max=16 step=1
default=0 value=0
error 22 getting ctrl Horizontal Visual Angle
error 22 getting ctrl Vertical Visual Angle
error 22 getting ctrl Focus Length
    sensor_type 0x0098195e (menu) : min=0 max=1 default=0
value=0 flags=volatile
    0: YUV
    1: RAW

error 22 getting ctrl R GAIN
error 22 getting ctrl R GAIN
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error 22 getting ctrl R GAIN
    vin_flash_ctrl 0x00981967 (menu) : min=0 max=2 default=0
value=0
    0: Off
    1: Auto
    2: Red Eye

```

Camera Controls

```

    auto_exposure 0x009a0901 (menu) : min=0 max=3 default=0
value=0
    0: Auto Mode
    1: Manual Mode
    2: Shutter Priority Mode
    3: Aperture Priority Mode
error 22 getting ext_ctrl Exposure Time, Absolute
    exposure_dynamic_framerate 0x009a0903 (bool) : default=0 value=0
    focus_absolute 0x009a090a (int) : min=0 max=127 step=1
default=0 value=0
    focus_relative 0x009a090b (int) : min=-127 max=127 step=1
default=0 value=0 flags=write-only, execute-on-write
    focus_automatic_continuous 0x009a090c (bool) : default=1 value=1
    auto_exposure_bias 0x009a0913 (intmenu): min=0 max=8 default=4

```

```

value=4
0: -4 (0xfffffffffffffffc)
1: -3 (0xfffffffffffffffd)
2: -2 (0xfffffffffffffffe)
3: -1 (0xfffffffffffffff0)
4: 0 (0x0)
5: 1 (0x1)
6: 2 (0x2)
7: 3 (0x3)
8: 4 (0x4)
white_balance_auto_preset 0x009a0914 (menu) : min=0 max=9 default=1
value=1
0: Manual
1: Auto
2: Incandescent
3: Fluorescent
4: Fluorescent H
5: Horizon
6: Daylight
7: Flash
8: Cloudy
9: Shade
wide_dynamic_range 0x009a0915 (bool) : default=0 value=0
image_stabilization 0x009a0916 (bool) : default=0 value=0
iso_sensitivity 0x009a0917 (intmenu): min=0 max=6 default=2
value=2
0: 100 (0x64)
1: 200 (0xc8)
2: 400 (0x190)
3: 800 (0x320)
4: 1600 (0x640)
5: 3200 (0xc80)
6: 6400 (0x1900)
iso_sensitivity_auto 0x009a0918 (menu) : min=0 max=1 default=1
value=1
0: Manual
1: Auto
exposure_metering_mode 0x009a0919 (menu) : min=0 max=3 default=0
value=0
0: Average
1: Center Weighted
2: Spot
3: Matrix
scene_mode 0x009a091a (menu) : min=0 max=13 default=0
value=0
0: None
1: Backlight
2: Beach/Snow
3: Candle Light
4: Dusk/Dawn
5: Fall Colors
6: Fireworks
7: Landscape
8: Night
9: Party/Indoor

```

```

10: Portrait
11: Sports
12: Sunset
13: Text
error 22 getting ext_ctrl 3A Lock
      auto_focus_start 0x009a091c (button) : flags=write-only,
execute-on-write
      auto_focus_stop 0x009a091d (button) : flags=write-only,
execute-on-write
error 22 getting ext_ctrl Auto Focus, Status
      auto_focus_range 0x009a091f (menu)   : min=0 max=3 default=0
value=0

0: Auto
1: Normal
2: Macro
3: Infinity

Flash Controls

      led_mode 0x009c0901 (menu)   : min=0 max=4 default=0
value=0

0: Off
1: Flash
2: Torch
4: Software

```

set video format

- input

```
v4l2-ctl --set-fmt-video=width=640,height=480,pixelformat=RGBP --
device=/dev/video0
```

- output (null)

get video format

- input

```
v4l2-ctl --get-ctrl brightness --device=/dev/video0
```

- output

```

Format Video Capture Multiplanar:
  Width/Height      : 640/480
  Pixel Format       : 'RGBP' (16-bit RGB 5-6-5)
  Field              : None
  Number of planes   : 1
  Flags              :
  Colorspace         : JPEG
  Transfer Function  : Default
  YCbCr/HSV Encoding: Default
  Quantization       : Default
  Plane 0            :
    Bytes per Line   : 1200
    Size Image        : 729600

```

Test video stream

- input

```
v4l2-ctl --stream-mmap=3 --stream-count=100 --stream-to=test.yuv --  
device=/dev/video0
```

- output

```
VIDIOC_STREAMON returned -1 (Operation not permitted)
```

曝光度 exposure

- 参数信息:

```
min=1 max=1048576 step=1 default=1 value=0 flags=slider
```

set

- input

```
v4l2-ctl --set-ctrl exposure=1048576 --device=/dev/video0
```

- output (null)

get

- input

```
v4l2-ctl --get-ctrl exposure --device=/dev/video0
```

- output

```
exposure: 0
```

亮度 brightness

- 参数信息:

```
min=-128 max=128 step=1 default=0 value=0 flags=slider
```

set

- input

```
v4l2-ctl --set-ctrl brightness=-128 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Invalid argument  
brightness: Invalid argument
```

get

- input

```
v4l2-ctl --get-ctrl brightness --device=/dev/video0
```

- output

```
brightness: -127
```

对比度 contrast

- 参数信息:

```
min=-128 max=128 step=1 default=0 value=0 flags=slider
```

set

- input

```
v4l2-ctl --set-ctrl contrast=-128 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Invalid argument  
brightness: Invalid argument
```

get

- input

```
v4l2-ctl --get-ctrl contrast --device=/dev/video0
```

- output

```
contrast: -127
```

饱和度 saturation

- 参数信息:

```
min=-256 max=512 step=1 default=0 value=0 flags=slider
```

set

- input

```
v4l2-ctl --set-ctrl saturation=512 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Invalid argument  
brightness: Invalid argument
```

get

- input

```
v4l2-ctl --get-ctrl saturation --device=/dev/video0
```

- output

```
saturation: 511
```

色调 hue

- 参数信息:

```
min=-180 max=180 step=1 default=0 value=0 flags=slider
```

set

- input

```
v4l2-ctl --set-ctrl hue=180 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Invalid argument  
brightness: Invalid argument
```

get

- input

```
v4l2-ctl --get-ctrl hue --device=/dev/video0
```

- output

```
hue: 179
```

自动白平衡 `white_balance_automatic`

- 参数信息 (bool) :

```
default=1 value=1 # 0关闭, 1开启
```

set

- input

```
v4l2-ctl --set-ctrl white_balance_automatic=0 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Operation not permitted  
white_balance_automatic: Operation not permitted
```

get

- input

```
v4l2-ctl --get-ctrl white_balance_automatic --device=/dev/video0
```

- output

```
white_balance_automatic: 1
```

自动增益控制 `gain_automatic`

- 参数信息 (bool) :

```
default=1 value=1 # 0关闭, 1开启
```

set

- input

```
v4l2-ctl --set-ctrl gain_automatic=0 --device=/dev/video0
```

- output


```
VIDIOC_S_CTRL: failed: Invalid argument
gain_automatic: Invalid argument
```

get

- input

```
v4l2-ctl --get-ctrl gain_automatic --device=/dev/video0
```

- output

```
gain_automatic: 1
```

水平翻转 horizontal_flip

- 参数信息 (bool) :

```
default=0 value=0 # 0关闭, 1开启
```

set

- input

```
v4l2-ctl --set-ctrl horizontal_flip=1 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Operation not permitted
white_balance_automatic: Operation not permitted
```

get

- input

```
v4l2-ctl --get-ctrl horizontal_flip --device=/dev/video0
```

- output

```
horizontal_flip: 0
```

垂直翻转 vertical_flip

- 参数信息 (bool) :

```
default=0 value=0 # 0关闭, 1开启
```

set

- input

```
v4l2-ctl --set-ctrl vertical_flip=1 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Operation not permitted
white_balance_automatic: Operation not permitted
```

get

- input

```
v4l2-ctl --get-ctrl vertical_flip --device=/dev/video0
```

- output

```
vertical_flip: 0
```

锐度 sharpness

- 参数信息:

```
min=0 max=1000 step=1 default=0 value=0 flags=slider
```

set

- input

```
v4l2-ctl --set-ctrl sharpness=1000 --device=/dev/video0
```

- output

```
VIDIOC_S_CTRL: failed: Invalid argument  
sharpness: Invalid argument
```

get

- input

```
v4l2-ctl --get-ctrl sharpness --device=/dev/video0
```

- output

```
sharpness: 999
```

结论

- brightness、contrast、saturation、hue、sharpness 等参数修改之后，效果没有变化
- exposure、vertical_flip、horizontal_flip、gain_automatic、white_balance_automatic 等参数无法设置，驱动未支持