- 1.
- 2. :
- 3. : udev
  - 3.1. :
  - 3.2. :
    - 3.2.1. : 90°
    - 3.2.2. : 180°
    - 3.2.3. : 270°
  - 3.3. :
    - 3.3.1. : Y
    - 3.3.2. : X
- 4. : (8)

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- Astra Linux Special Edition .10015-01 (1.7), .10015-10
- Astra Linux Special Edition .10015-17
- Astra Linux Special Edition .10015-37 (7.7)
- Astra Linux Special Edition .10015-03 (7.6)
- Astra Linux Special Edition .10015-01 (1.6)
- Astra Linux Special Edition .10015-16 . 1
- Astra Linux Common Edition 2.12

1.

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udev, , , . () 33, , .

IIO Linux, iio-sensor-proxy - https://gitlab.freedesktop.org/hadess/iio-sensor-proxy/#iio-sensor-proxy.

, , (.: https://gitlab.freedesktop.org/hadess/iio-sensor-proxy/#accelerometer-orientation).

, .

, **( ).**

	x	y	z
(1)	x1	y1	z1
(2)	x2	y2	z2
(3)	x3	y3	z3

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="x1,y1,z1;x2,y2,z2;x3,y3,z3"
```

, iio-sensor-proxy () :

	x	y	z
(1)	1	0	0
(2)	0	1	0
(3)	0	0	1

udev :

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="1,0,0;0,1,0;0,0,1"
```

, . , , .

2. :

. , ACPI - Advanced Configuration and Power Interface (.: https://ru.wikipedia.org/wiki/ACPI).

, DSL (ACPI), :

DSL

```
cat /sys/firmware/acpi/tables/DSDT > dsdt.dat
iasl -d dsdt.dat
```

> *iasl - Intel ACPI /, ACPI , .: https://linux.die.net/man/1/iasl.*
>
> *iasl -d dsdt.dat*
> *dsdt.dat dsdt.dsl (ASL)*
>
> *ASL - ACPI Source Language, ACPI, .: https://wiki.osdev.org/AML.*

(dsdt.dsl) :

1. DEVICE_ID/VENDOR_ID,
2. **ROTM (Rotation Matrix).**

, - , .3.

Lenovo IdeaPad 3IGL5-LTE:

ROTM

```
Method (ROTM, 0, NotSerialized)
{
        Name (RBUF, Package (0x03)
    {
                "0 -1 0",
        "1 0 0",
        "0 0 1"
    })
    Return (RBUF) /* \_SB_.PCI0.I2C5.DEV_.ROTM.RBUF */
}
```

, :

	x	y	z
(1)	0	-1	0
(2)	1	0	0
(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="0,-1,0;1,0,0;0,0,1"
```

, , (.3).

3. : udev

, :

1. ( ). . , , . , (iRU, ,);
2. , , , .

3.1. :

() udev , /etc/udev/rules.d/99-astra-orientation.rules ( ):

	x	y	z

(1)	1	0	0
(2)	0	1	0
(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="1,0,0;0,1,0;0,0,1"
```

.

3.2. :

, , , , .

() (. 3.1).

3.2.1. : 90°

:

	x	y	z
(1)	1	0	0
(2)	0	1	0
(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="
*accel*",
ENV{ACCEL_MOUNT_MATRIX}="1,0,0;
0,1,0;0,0,1"
```

:

	x	y	z
(1)	**cos (90)**	**-1 * sin (90)**	0
(2)	**sin (90)**	**cos (90)**	0
(3)	0	0	1

:

	x	y	z
(1)	0	-1	0
(2)	1	0	0
(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="
*accel*",
ENV{ACCEL_MOUNT_MATRIX}="0,-1,0;
1,0,0;0,0,1"
```

3.2.2. : 180°

:

	x	y	z
(1)	1	0	0
(2)	0	1	0
(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="
*accel*",
ENV{ACCEL_MOUNT_MATRIX}="1,0,0;
0,1,0;0,0,1"
```

:

	x	y	z
(1)	**cos (180)**	**-1 * sin (180)**	0
(2)	**sin (180)**	**cos (180)**	0
(3)	0	0	1

:

	x	y	z
(1)	-1	0	0
(2)	0	-1	0
(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="
*accel*",
ENV{ACCEL_MOUNT_MATRIX}="-1,0,0;
0,-1,0;0,0,1"
```

3.2.3. : 270°

:

	x	y	z
(1)	1	0	0
(2)	0	1	0

:

	x	y	z
(1)	**cos (270)**	**-1 * sin (270)**	0

:

	x	y	z
(1)	0	1	0
(2)	-1	0	0

(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="1,0,0;0,1,0;0,0,1"
```

(2)	**sin (270)**	**cos (270)**	0
(3)	0	0	1

(3)	0	0	1

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="0,1,0;-1,0,0;0,0,1"
```

3.3. :

. 3.2 (/), Y . (. 3.3.1).

, , , . 3.2., X (. 3.3.2).

3.3.1. : Y

, (. 3.2.).

	x	y	z
(1)	x1	y1	z1
(2)	x2	y2	z2
(3)	x3	y3	z3

Y (,) **-1**, . .:

- **y1 * -1;**
- **y2 * -1.**

, :

	x	y	z
(1)	x1	**y1 = -1 * y1**	z1
(2)	x2	**y2 = -1 * y2**	z2
(3)	x3	y3	z3

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="x1,-y1,z1;x2,-y2,z2;x3,y3,z3"
```

3.3.2. : X

, **, (. 3.2.).**

	x	y	z
(1)	x1	y1	z1
(2)	x2	y2	z2
(3)	x3	y3	z3

X (,) **-1**, . .:

- **x1 * -1;**
- **x2 * -1.**

, :

	x	y	z
(1)	**x1 = -1 * x1**	y1	z1

(2)	**x2 = -1 * x2**	y2	z2
(3)	x3	y3	z3

/etc/udev/rules.d/99-astra-orientation.rules

```
ENV{IIO_SENSOR_PROXY_TYPE}=="*accel*",
ENV{ACCEL_MOUNT_MATRIX}="-x1,y1,z1;-x2,y2,z2;x3,y3,z3"
```

4. : (8)

( ) , 8 :

1. **/sys/bus/iio/devices/iio:device0/in_accel_sampling_frequency_available**
2. **/sys/bus/iio/devices/iio:device0/in_accel_sampling_frequency**

 , .

 , , .

,

```
sudo mkdir /etc/mig
sudo touch /etc/mig/mig-t8x-accel-sampling-freq-fix.sh
```

, /etc/mig/mig-t8x-accel-sampling-freq-fix.sh :

/etc/mig/mig-t8x-accel-sampling-freq-fix.sh

```
SET_FREQ_FILE="/sys/bus/iio/devices/iio:device0/in_accel_sampling_frequency"
AV_FREQ_FILE="/sys/bus/iio/devices/iio:device0/in_accel_sampling_frequency_available"

freqLine=$(cat $AV_FREQ_FILE)
minFreq=0

for freq in $freqLine
do
    minFreq=$freq
    break
done

echo $minFreq > $SET_FREQ_FILE
```

:

,

```
sudo touch /etc/systemd/system/mig-t8x-accel-sampling-fix.service
sudo chmod 644 /etc/systemd/system/mig-t8x-accel-sampling-fix.service
```

, :

/etc/systemd/system/mig-t8x-accel-sampling-fix.service

```
[Unit]
Description=Fix accel sampling frequency for MIG T8x

[Service]
Type=simple
ExecStart=/bin/bash /etc/mig/mig-t8x-accel-sampling-freq-fix.sh

[Install]
WantedBy=multi-user.target
```

, :

```
sudo systemctl enable mig-t8x-accel-sampling-fix.service
```

.

: generate_mig-t8x-fix-accel-sampling-frequency.sh