CMA3000-D0x Accelerometer

Supported chips: * VTI CMA3000-D0x

Datasheet:
CMA3000-D0X Product Family Specification 8281000A.02.pdf <http://www.vti.fi/en/>

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Description

CMA3000 Tri-axis accelerometer supports Motion detect, Measurement and Free fall modes.

Motion Detect Mode:
Its the low power mode where interrupts are generated only when motion exceeds the defined thresholds.
Measurement Mode:
This mode is used to read the acceleration data on X,Y,Z axis and supports 400, 100, 40 Hz sample frequency.
Free fall Mode:
This mode is intended to save system resources.
Threshold values:
Chip supports defining threshold values for above modes which includes time and g value. Refer product specifications for more details.

CMA3000 chip supports mutually exclusive I2C and SPI interfaces for communication, currently the driver supports I2C based communication only. Initial configuration for bus mode is set in non volatile memory and can later be modified through bus interface command.

Driver reports acceleration data through input subsystem. It generates ABS_MISC event with value 1 when free fall is detected.

Platform data need to be configured for initial default values.

Platform Data

fuzz_x:
Noise on X Axis
fuzz_y:
Noise on Y Axis
fuzz_z:
Noise on Z Axis
g_range:
G range in milli g i.e 2000 or 8000
mode:
Default Operating mode
mdthr:
Motion detect g range threshold value
mdfftmr:
Motion detect and free fall time threshold value
ffthr:
Free fall g range threshold value

Input Interface

Input driver version is 1.0.0 Input device ID: bus 0x18 vendor 0x0 product 0x0 version 0x0 Input device name: "cma3000-accelerometer"

Supported events:

```
  Event type 0 (Sync)
  Event type 3 (Absolute)
    Event code 0 (X)
      Value     47
      Min    -8000
      Max     8000
      Fuzz     200
    Event code 1 (Y)
      Value    -28
      Min    -8000
      Max     8000
      Fuzz     200
    Event code 2 (Z)
```

```
      Value    905
      Min    -8000
      Max     8000
      Fuzz     200
    Event code 40 (Misc)
      Value      0
      Min        0
      Max        1
  Event type 4 (Misc)
```

Register/Platform parameters Description

mode:

```
0: power down mode
1: 100 Hz Measurement mode
2: 400 Hz Measurement mode
3: 40 Hz Measurement mode
4: Motion Detect mode (default)
5: 100 Hz Free fall mode
6: 40 Hz Free fall mode
7: Power off mode
```

grange:

```
2000: 2000 mg or 2G Range
8000: 8000 mg or 8G Range
```

mdthr:

```
X: X * 71mg (8G Range)
X: X * 18mg (2G Range)
```

mdfftmr:

```
X: (X & 0x70) * 100 ms (MDTMR)
   (X & 0x0F) * 2.5 ms (FFTMR 400 Hz)
   (X & 0x0F) * 10 ms  (FFTMR 100 Hz)
```

ffthr:

```
X: (X >> 2) * 18mg (2G Range)
X: (X & 0x0F) * 71 mg (8G Range)
```