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**DRAFT DOCUMENT**

**The feature has 3 functions and 1 events:**

**[0x6100]TouchPadRawXY**

GetTouchPadInfo = [0]GetTouchPadInfo()

GetRawReportState = [1]GetRawReportState()

void = [2]SetRawReportState(uint8\_t state)

**[0x6100] EVENT TouchPadRawXY**

DualXYData = [0]TwoFingersDataReport()

**[0x6100] FUNCT GetTouchpadInfo()**

**Summary**

Returns the TouchPad characteristics (size, number of dots, data ranges, etc)

**Parameters**

none

**Returns**

|  |  |  |
| --- | --- | --- |
| **byte num**  **(in payload)** | **description** | **remarks** |
| 0 | X size (dots) H | max pixels reported MSB |
| 1 | X size (dots) L | max pixels reported LSB |
| 2 | Y size (dots) H | max pixels reported MSB |
| 3 | Y size (dots) L | max pixels reported LSB |
| 4 | Z data range (size) | 0x00 means no range  0x0F means 16bits |
| 5 | Area data range (size) | 0x0F means 16bits |
| 6 | Timestamps unit given in 0.1ms | A value of 10 means timestamps are in units of 1 mSec  See **Note 1)** |
| 7 | Max number of fingers |  |
| 8 | Position of the origin | 0x00 = reserved  0x01 = LOWER-LEFT  0x02 = LOWER-RIGHT  0x03 = UPPER-LEFT  0x04 = UPPER-RIGHT  Note: corners are defined by looking at device from above, with lower edge toward the user and upper facing the PC screen |
| 9 | RESERVED |  |
| 10 | RESERVED |  |
| 11 | RESERVED |  |
| 12 | RESERVED |  |
| 13 | DPI\_H | Touchpad Resolution MSB (Same resolution in X and Y) |
| 14 | DPI\_L | Touchpad Resolution LSB (Same resolution in X and Y) |
| 15 | RESERVED |  |

**Note 1)** Exception: A device that reports 8 in this field has a timestamp unit of 1ms (i.e field value equivalent to 10). There is no support for devices with 0.8 mSec timestamp unit.

**Errors** None

**[0x6100] FUNCT GetRawReportState**

**Summary**

Returns the TouchPad raw reporting state byte.

**Parameters**

none

**Returns**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| bit 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| RSVD | RSVD | RSVD | raw and native | width/height 4-bit reporting | enhance | add force data on 16bits | enable raw |

**Byte 0:** State

**[0x6100] FUNCT SetRawReportState**

**Summary**

Sets the TouchPad raw reporting state byte.

**Parameters**

**Byte 0:** state

**Returns**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| bit 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| RSVD | RSVD | RSVD | eaw and native | width/height 4-bit reporting | enhance | add Z info on 16bits | enable raw |

**none**

**Reporting state details:**

**bit0**: enable raw reporting

0 = DISABLED (Touchpad reports on standard HID pipe. Gestures are processed in the touchpad)

1 = ENABLED: (Touchpad reports raw data on HIDPP pipe, nothing is sent on the standard HID pipe. No gesture processing is done by the touchpad)

**bit1:** (add Z info on 16bits)

0 = DISABLED (Area byte in report contains the contact area. Z is reported as 8 bit value)

1 = ENABLED (Area byte in report contains the MSB of a 16bit Z value. No area is reported)

**bit2**: - Enhance

0 = DISABLED (Normal settings for sensor)

1 = ENABLED (Enhanced sensibility for sensor)

**bit3**: - Width/Height reporting (4-bit each) instead of Area

0 = DISABLED

1 = ENABLED (report width/height)

**bit4**: - Send RAW data as well as recognized gestures/tracking/scrolling messages. (dual mode)

0 = DISABLED

1 = ENABLED (send both, raw data on hidpp pipe and standard data on hid channel) This mode may degrade the tracking smoothness.

**Returns**

**none**

EVENT [0] format:

**[0x6100] Event TouchPadRawTouchPoints**

**Summary**

Sends data for two fingers, out of the N currently used. Sent by chunks of 2 fingers.

**Parameters**

none

**Returns**

DualXYData [16 x 8bits]

|  |  |  |
| --- | --- | --- |
| **byte num (in payload)** | **description** | **covers** |
| 0 | Timestamp (MSB) | tags this packet (both touch points) |
| 1 | Timestamp (LSB) |
| 2 | **2b** Contact type  **6b** X (MSB) | touch point 1 |
| 3 | X (LSB) |
| 4 | **2b** Contact status  **6b** Y (MSB) |
| 5 | Y (LSB) |
| 6 | Z/Force |
| 7 | Area or (width + height) |
| 8 | **4b** Finger ID  **1b** proximity detection  **1b** mechanical button  **1b** Spurious Flag  **1b** End-of-Frame (\*) |
| 9 | **2b** Contact type  **6b** X (MSB) | touch point 2 |
| 10 | X (LSB) |
| 11 | **2b** Contact status  **6b** Y (MSB) |
| 12 | Y (LSB) |
| 13 | Z/Force |
| 14 | Area |
| 15 | **4b** Finger ID  **4b** Total number of fingers in this frame |

CONTACT TYPE:

**00 = finger**

01 = reserved

10 = reserved

11 = reserved

CONTACT STATUS (**2bits**)

**00 = no finger (released)**

01 = touch

10 = hover

11 = reserved

**Note**: in order to release finger the device will send an empty report (ie with all data to 0).

It is important to note that X=0, Y=0, Force=0, Area=0 are still valid values, therefore the host software (driver) should check for CONTACT\_STATUS = 0x00 to assess the release of that finger.

In case more than 2 fingers are present, two or more event will be sent to complete the frame:

The **timestamp** will be the same (it represents the timestamp of the moment when the frame is captured)

The **total number of fingers** (in the frame) is repeated in all messages of the frame

The last message of the frame will be "tagged" with the **1b End-of-Frame** bit set to 1.