Request #: HUTRR87
Title: Heat Map Digitizers
Spec Release: 1.12
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Pages Affected: Digitizers 0x0D
Values checked: Yes, by Chair

Current Status: Approved

Required Voter: Microsoft
Required Voter: Intel
Required Voter: Wacom

Received: 01 Oct 2018
Voting Begins: 25 Oct 2018
Voting Ends: 01 Nov 2018
Voting Result: Approved 5-0-0
Approved Date: 02 Nov 2018

Summary:

This adds support for a new catagory of capacitive heat map digitizers, a form of digitizer which exclusively reports report raw capacitive input to the host for advanced processing. This also adds support for related usages to allow a host device to interpret the heat map data sent from the device.

Background:

With advancements in computing technology, it is becoming more attractive for advanced touch processing to be offloaded from firmware to a host device. This can allow for additional context to be provided for object classification, from the state of the device (gounding to devices, position of displays) to the the user's intent (foreground app, location of UI elements on screen, etc).

Typically, this data is commonly represented as a heat map - a matrix of raw capacitive measurements representing the sensed capacitance at sensor locations across the screen. Currently, there are multiple formats for the encoding of raw capacitive data which differ from vendor to vendor. These

encodings allow for heat map data to be sent into multiple reports for reporting of large sensor areas, reporting a subset of the heat map for power savings, and packaging additional data relevant for input processing.

Proposal:

All changes are localized to Chapter 16 Digitizers (0x0D).

New usages to be added to Table 18: Digitizer Page

0F	Capacitive Heat Map Digitizer	CA	16.1
6A	Capacitive Heat Map Protocol Vendor ID	SV	16.3.1
6B	Capacitive Heat Map Protocol Version	SV	16.3.1
6C	Capacitive Heat Map Frame Data	DV	16.3.1

Additions referenced by the above usages:
Section 16.1 Digitizer Devices

Capacitive Heat Map Digitizer — CA - A digitizer that collects raw capacitive data in a heat map format and reports to the host device for additional processing.

Section 16.8 Heat Map Usages

Capacitive Heat Map Protocol Vendor ID — SV - Specifies the vendor of the heat map protocol, for interpreting the data associated with an input of Capacitive Heat Map Frame Data, and associated additional input usages which are neccessary for the protocol. This would be a USB-IF Vendor ID.

Capacitive Heat Map Protocol Version — SV - Specifies the heat map encoding protocol version, if applicable, to differentiate between multiple protocols developed by a single vendor.

Capacitive Heat Map Frame Data — DV - Represents a heat map frame from a digitzer. The format of the raw data inside this frame is dependent on the protocol vendor specified in the Capacitive Heat Map Protocol Vendor ID usage.

Response:

Notes on Approval Procedure:

HID WG On Line Voting Procedures

1. Votes are on a per company basis.

2. Each Review Request shall have attached a Required Voter List that is the result of recruiting by the HID Chair and submitter of members of the USB IF. Required Voter List must include the HID Chair plus 2 companies (other than the submitter) plus any others designated by the HID Chair at the Chair's discretion. The Required Voter List ensures that a quorum is available to approve the Request.

3. Impose a 7-calendar-day posting time limit for new Review Requests. HID Chair or designate must post the RR within 7 calendar days. HID Chair or designate must work with the submitter to make sure the request is valid prior to posting. Valid review request must include all fields marked as required in the template. A new template will be adopted that requires at least the following fields: Change Text, Required Voter List, Review Period End Date and Voting End Date, Submittal Date, Submitter, Review Request Title and RR Number.

4. If a RR approval process stalls, the HID Chair may call a face-to-face meeting or conference call to decide the issue. Submitter may request that this take place.

5. Impose a minimum 15-calendar-day review period on a posted RR prior to the voting period. At HID Chair discretion, changes to the RR may require this review period to restart.

6. The Chair will accept votes via documentable means such as mail or e-mail during the 7 calendar days after the close of the review period. If a Required Voter does not vote during the period, then there is no quorum and the Chair may pursue the absent required voter and extend the voting period. The Chair may designate a substitute for the absent voter and extend the voting period if necessary.