QuNeo Open Operation #1:
Sensor Cooking Description
Rev.4 (12.9.11)

This is a brief description of how raw data should be processed and presented. Two sensitivity gain multipliers can be applied to Pads and other sensors treated as a group. On / Off thresholds can be set as well as smoothing and other performance variables.

Pads - Drum Triggers

Per Pad: Notes mapped per pad and per corner. This is 5 notes x 16 = 80 notes. Velocity for each of the 5 notes is available. User will need to select one note per pad (Drum Pad style) or 4 corners (Grid style).

PolyAftertouch can be associated with each of these corner notes where each corner can be a pressure sensitive source for Aftertouch.

Continuous Controllers: X, Y, Pressure. Latched versions of each of these can be made available.

LED Behavior -

Corners can track corner notes if enabled. Otherwise X-Y is displayed upon Note On and then updates if continuous out is mapped. If no X-Y then all four corners can follow same color map.

Beat indicator: We have 8 x 8 LED positions (2 each X & Y per key). Can be used to display beat location like Launchpad.

Sliders

These are capable of multiple touch recognition. I am limiting this to 2 touch-points. More points can be resolved by the motivated programmer using Raw Data. Initially enabled for long slider.

We look for a second finger creating a second contact point. Can hold off on issuing a first Note On when initially pressed. Or we issue two notes if this is desired - one for each touch point.

Position is sent as 0 - 127 (left to right or down to up). Search 16 sensor nodes for largest value or 2 largest values. This equates to one of 16 location regions. This can be interpolated creating more than 127 locations which yields sub millimeter resolution.

When two fingers are sensed we issue the length of the pinch as well as the left most touch point.

Pressure: Can be live or latched. Values from each of 16 sensor nodes are weighted and combined. Various averaging methods will be available.

FingerOn / FingerOff used for Notes and Toggles.

Return to center option - good for pitch bend.

LED Behavior -

Can be Peak, Level, VU, Pinch Region.

Rotaries

Degrees - Search 16 sensor nodes for largest value or 2 largest values. This equates to one of 16 location regions. These can be interpolated based on pressure value to 5.625 angular degrees. Twelve O'Clock position is zero.

Multiple Touch - if two maxima are found that are not adjacent, a "wedge" is defined as the sweep of angle between these points. May be "grown" or "stretched - pinched". Likely direction of motion of maxima can determine intended angle (as it is ambiguous if only two points are active).

Pressure - Values from each of 16 sensor nodes are weighted and summed. Various averaging methods will be available.

Radius - Number of data points active equates to proximity to center.

FingerOn / FingerOff used for Notes and Toggles.

Return to center option - good for pitch bend like control.

LED Behavior -

We used inverted LED mode so touch point is dark and remainder is On - map brightness from Pressure.

Lighted wedge good for showing active or selected area.

Radius / diameter: LED brightness .

Switches / Banks

Each of the Switches is a continuously variable sensor with a Pressure output. LEDs are mapped 1:1 for all sensors except Bank Select which has at least 4 states. Rotaries and faders canned be banked to present up to 8 rotaries and 16 faders. Values and LED behavior will be remembered and displayed upon switching banks.