

TSF to ZPD I/O Format

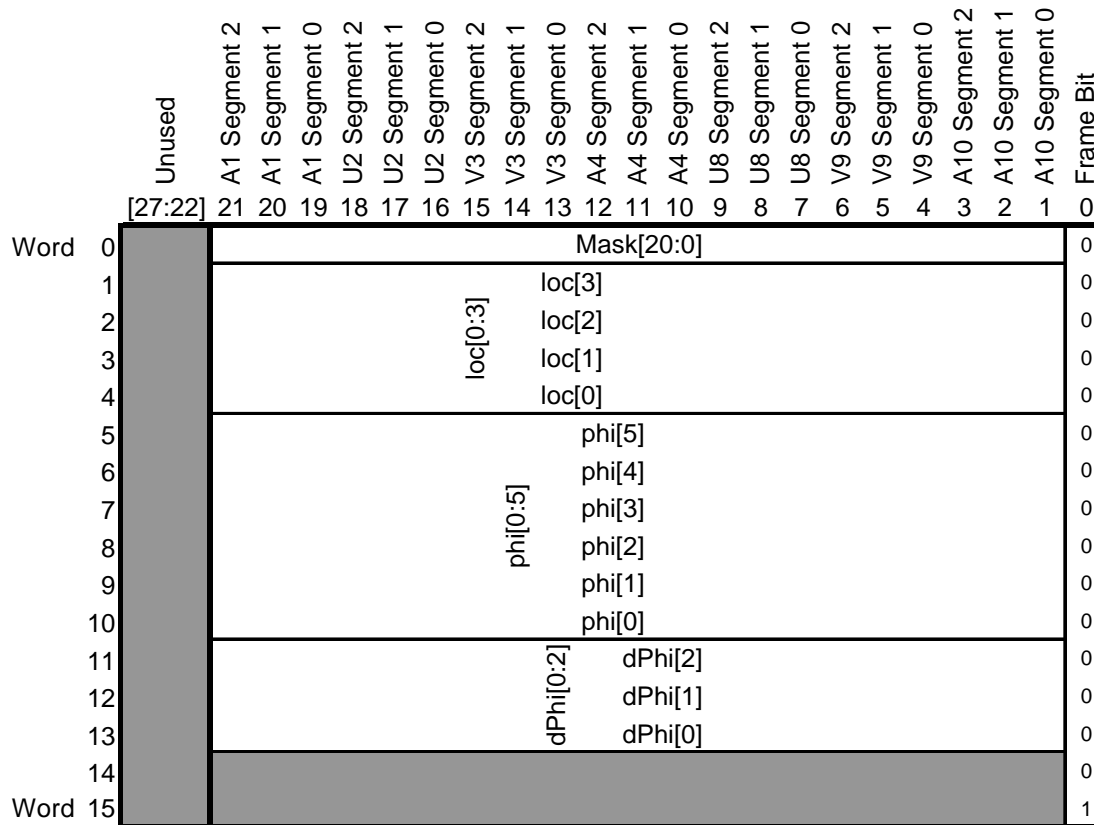
Stephen Bailey, 29 November 2001

6 Mar 02: Reversed segment ordering; clarified TSFy sector boundaries. sjb

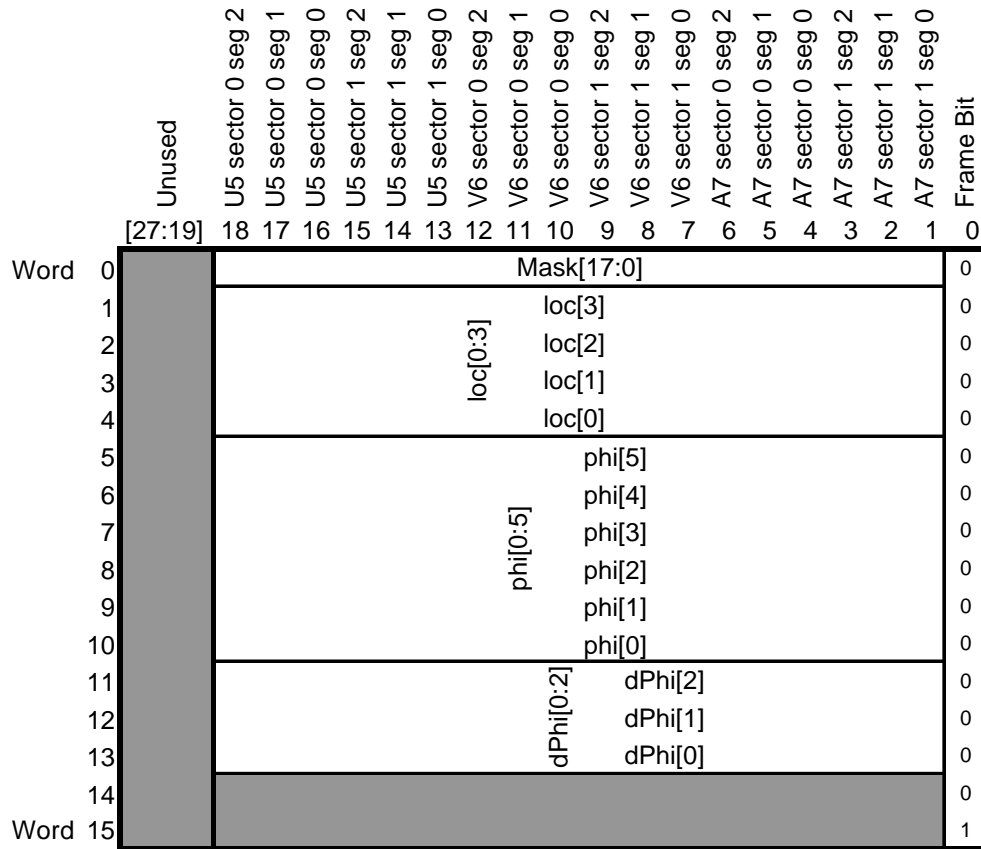
4 Apr 03: Updated frame bit definition in diagram. sjb.

- TSF_x and TSF_y have identical formats except for how many segments are sent.
- Cell location (loc) has 4 bits; fine phi bins (phi) with respect to that cell has 6 bits; phi error (dPhi) has 3 bits
- Mask=1 means the segment exists. Mask=0 means it does not and the other bits are undefined.
- The three segments within a TSF_x superlayer may be in any order; e.g. segment 0 does not necessarily have a smaller phi or a higher selection rank than segment 1.
- Although the TSF_y sends 6 segments per superlayer, these are in two groups of 3, each group covering one sector ($2\pi/16$ radians). The ordering within a sector is arbitrary (just as with the TSF_x) but the two groups are completely separate. The segments in sector 0 have smaller f values (in radians, not be confused with “phi”) than those in sector 1.
- Most significant bits are sent first.

TSF_x to ZPD



TSFy to ZPD



6 bit phi

The 6 bits of phi[5:0] cover the full range of 0 to 63. This is different than the current 5 bit LUT which starts at phi=1. The fine phi bin locations with respect to the cell center, edges, and centers of neighboring cells are as follows:

