## L2 Preproccessor Input: L1 $\Rightarrow$ L2PP's

Assumes packing such that:

- smallest fragment size for a variable within an object is **1 byte**
- object's total data size must be an **integer number of 4-byte words**

**Calorimeter:**

The L1 output will consist of the $32\phi \times 40\eta = 1280$ trigger towers. There will be two additional rows each in $\eta$ and $\phi$ to make the cluster addition faster in the preprocessors. The extra $\eta$ rows will be zeros while the $\phi$ rows will be copies of $\phi = 0, 1$ and $\phi = 30, 31$. Thus there will be $36\phi \times 44\eta = 1584$ towers. The per event total will need to be multiplied by some number of interactions, $N_i \geq 4$. Also will need the trigger bitmasks indicating which trigger towers passed each reference threshold (40 masks, each 32 bits, 4 ref sets).

| Item | Bytes |
|---|---|
| Trigger bitmasks | 4 bytes $\times$ 40 masks $\times$ 4 ref sets = 640 |
| Total $E_T$ TT | 1584 TT $\times$ 2 b/TT = 3168 |
| EM $E_T$ TT | 1584 TT $\times$ 1 b/TT = 1584 |
| Total | 4752 bytes |
| $\times N_i$ ($N_i = 4$) | 19648 b/evt |

**Muon:**

There will be three MTCM cards with output to L2 muon preprocessors. Data transfer should take 4.75 $\mu$s (per card or total?).

| Item | Bytes |
|---|---|
| Start of transmission | 1 |
| Bunch crossing number | 1 |
| Turn number | 2 |
| Crate trigger decision | 2 |
| Card trigger decisions | 32 |
| Spare card trigger data | 32 |
| MTCM errors | 1 |
| MTCM status | 1 |
| Checksum | 1 |
| End transmission | 1 |
| Total | 76 bytes $\times$ 3 cards = 228 bytes |

**CFT:**

CFT L1 output will go directly into L2Global and the CUV L2PP. The Axial CFT Trigger will find track cadidates in each of 80 trigger sectors and transmit that data to the L2 Global processor and to other L1 trigger and/or L2 preprocessors (as needed). The data will consist of the phi position information for each of up to 6 track candidates from each sector. All six candidates will be sent regardless of actual existence (Ref: F. Borcherding)

| CFT PP | |
|---|---|
| Item | Bytes |
| Header (sector + bx #) | 2 |
| Inner $\phi$ | $2 \times 6$ max cand |
| Outer $\phi$ | $2 \times 6$ max cand |
| Total | 8 bytes/object |
| fix: 10 obj/evt $\Rightarrow$ 80 bytes/evt | |