

Data Formatter

Triggered header word

1fff ffee eeee eeee eeee eeee eeee eeee.

Fine BCO count

Extended BCO count.

Untriggered header word

0001 00ee eeee eeee eeee eeee eeee eeee eeee

Extended BCO count.

Hit data word

0010 pppp 00bb bbbb wwww hhhh hhhh hhhh

Plane ID, or hybrid ID.

BCO counter from hybrid

Word ID, in total 11 words per hybrid (11x12=132),
word ID from 1 to 11.

Hit information, 1 bit per cell, 12 cells per word.

Data to PC

Triggered/untriggered header word

Hit data word

Hit data word

Hit data word

....

Data from FEH

00 0000 bbbb bb₁₀ FEH BCO count

hh hhhh hhhh hh₁₁ channel 0-11

...

00 00hh hhhh hh₁₁ channel 120-127

Raw Data File

Raw Data Block

1.	Super block ID	I*4
2.	Length of the block	I*4
3.	Trigger header/Hit data word	I*4
4.	...	
5.	Trigger header/Hit data word	I*4

- ❖ One raw data file consists of many raw data blocks.
- ❖ Each block is a memory dump from one PTA card. The super block ID and the length of the block are added by online program.
- ❖ In normal run 6 consecutive raw data blocks should have the same super block ID corresponds to memory dump from all 6 PTAs at one memory swap.

Run Header Block

A: Run Header Block

- | | | |
|-----|-------------------------------------|------|
| 1. | Magic cookie (01 02 03 04) | I*4 |
| 2. | Length of the block | I*4 |
| 3. | Block ID (1) | I*4 |
| 4. | “RUN_TYPE: type of the run | C*80 |
| 5. | “VERSION: version” | C*80 |
| 6. | “RUN ID: run ID” | C*80 |
| 7. | “START_TIME: time stamp” | C*80 |
| 8. | “CONFIGURATION: configuration file” | C*80 |
| 9. | “GEOMETRY: geometry file” | C*80 |
| 10. | “START_COMMENT: comments” | C*80 |
| 11. | ... | |
| 12. | FF 00 00 00 | I*4 |

Event Block

B: Event Block

- | | | |
|-----|-----------------------------|-----|
| 1. | Magic cookie (01 02 03 04) | I*4 |
| 2. | Length of the block | I*4 |
| 3. | Block ID (2) | I*4 |
| 4. | Event number | I*4 |
| 5. | Super block ID | I*4 |
| 6. | Number of PTAs responded | I*4 |
| 7. | Trigger header | I*4 |
| 8. | Hit data word 1 | I*4 |
| 9. | Trigger header | I*4 |
| 10. | Hit data word 2 | I*4 |
| 11. | ... | |
| 12. | FF FF 00 00 | I*4 |

Run Trailer Block

C: Run Trailer Block

- | | | |
|----|-----------------------------|------|
| 1. | Magic cookie (01 02 03 04) | I*4 |
| 2. | Length of the block | I*4 |
| 3. | Block ID (99) | I*4 |
| 4. | “N_EVENTS: number” | C*80 |
| 5. | “N_RECORDS: number” | C*80 |
| 6. | “END_TIME: time stamp” | C*80 |
| 7. | “END_COMMENT: comment” | C*80 |
| 8. | | |
| 9. | FF FF FF FF | I*4 |