PETLINK™ Walkthrough: Vision Detector-Pair Packets

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The purpose of this document is to provide an introductory walkthrough of one aspect of the PETLINK™ Guideline. Here we present examples of various and representative bit fields as they might be used – fields which are currently active in support of the Siemens 8-Ring Vision 64-bit detector-pair packet format. The goal is to help the first-time user gain a better, general understanding of the packet format in use.

A companion example 64-bit list-mode file is provided: **vi8r_64dp_walkthrough.l64**
Two companion example C-code files are provided:

ml_vi8r_64dp_walkthrough_3.c **[Generates the example *.l64 file.]**
lmsw64dp_vision_verbose_3.c **[Reports contents of *.l64 file verbosely.]**

See also the PETLINK Guideline file.

Overview of list-mode file content:

The list-mode file generated shows examples of various packets with fields being incremented or decremented. Three types of tag packets are used – i.e. elapsed time, horizontal bed position, and lost event tally. [The elapsed time and lost event tally packets are incrementing except for the last maximum value packets. The horiz. bed position packets are decrementing except for the last, most-negative value packet.] Nine types of event packet fields are shown, all incrementing individually – i.e. AX, BX, XE, AY, BY, AE, BE, TOF, Prompt.

Generating List-Mode File Example:

```
> ml_vi8r_64dp_walkthrough_3 vi8r_64dp_walkthrough.l64
number of 64-bit packets output: 1399 file size: 2bb8
```

Reporting Contents of List-Mode File Example:

```
> lmsw64dp_vision_verbose_3.exe  vi8r_64dp_walkthrough.l64 >
log_vi8r_64dp_walkthrough.l64.txt
```

Samples of Above Text File Report:

```
 TAG64_ElapsedTime:    pkt_cnt: 1 ew2 ew1(h): 80008000 40000000 ms(h):       0 ms(d):         0
 TAG64_HorizBedPos:    pkt_cnt: 2 ew2 ew1(h): 8000c400 40000000 hbp(h):        0 hbp_se(d):        0
 TAG64_LostEventTally: pkt_cnt: 3 ew2 ew1(h): 8000bc00 40000000 lost(d):       0
 EVENT: pkt_cnt: 4 ew2 ew1(h): c0000000 10000 ax bx: 0 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 5 ew2 ew1(h): c0000000 10001 ax bx: 1 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 6 ew2 ew1(h): c0000000 10002 ax bx: 2 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 7 ew2 ew1(h): c0000000 10003 ax bx: 3 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 8 ew2 ew1(h): c0000000 10004 ax bx: 4 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 9 ew2 ew1(h): c0000000 10005 ax bx: 5 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 10 ew2 ew1(h): c0000000 10006 ax bx: 6 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 11 ew2 ew1(h): c0000000 10007 ax bx: 7 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 EVENT: pkt_cnt: 12 ew2 ew1(h): c0000000 10008 ax bx: 8 0 xe  1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
...
 EVENT: pkt_cnt: 1416 ew2 ew1(h): de000000 14010000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): fa tof_se(d): 250 prompt: 1
 EVENT: pkt_cnt: 1417 ew2 ew1(h): de000000 16010000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): fb tof_se(d): 251 prompt: 1
 EVENT: pkt_cnt: 1418 ew2 ew1(h): de000000 18010000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): fc tof_se(d): 252 prompt: 1
 EVENT: pkt_cnt: 1419 ew2 ew1(h): de000000 1a010000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): fd tof_se(d): 253 prompt: 1
 EVENT: pkt_cnt: 1420 ew2 ew1(h): de000000 1c010000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): fe tof_se(d): 254 prompt: 1
 EVENT: pkt_cnt: 1421 ew2 ew1(h): de000000 1e010000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): ff tof_se(d): 255 prompt: 1
 TAG64_ElapsedTime:    pkt_cnt: 1422 ew2 ew1(h): 80008000 40000008 ms(h):       8 ms(d):         8
 TAG64_HorizBedPos:    pkt_cnt: 1423 ew2 ew1(h): 8000c40f 4000fff8 hbp(h):    ffff8 hbp_se(d):       -8
 TAG64_LostEventTally: pkt_cnt: 1424 ew2 ew1(h): 8000bc00 40000008 lost(d):       8
 EVENT: pkt_cnt: 1425 ew2 ew1(h): 80000000 10000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 0
 EVENT: pkt_cnt: 1426 ew2 ew1(h): c0000000 10000 ax bx: 0 0 xe 1 ay by: 0 0 ae,be: 0 0 tof(h): 0 tof_se(d): 0 prompt: 1
 TAG64_ElapsedTime:    pkt_cnt: 1427 ew2 ew1(h): 80009fff 4000ffff ms(h): 1fffffff ms(d): 536870911
 TAG64_HorizBedPos:    pkt_cnt: 1428 ew2 ew1(h): 8000c408 40000000 hbp(h):    80000 hbp_se(d):  -524288
 TAG64_LostEventTally: pkt_cnt: 1429 ew2 ew1(h): 8000bc0f 4000ffff lost(d): 1048575
```

Appendix **1: Here are examples of what the V file viewer utility can show of the *.I64 file:**

Getting a copy of Fileviewer.exe: http://www.fileviewer.com/
Setting up Fileviewer (Version 12) for 64-bit packet displayed per line:

View>>Hex Mode (selected)
View>>Hex Formats>> Double Dword (selected)
View>>Hex Formats>> Flip Ends (selected)
View>>Hex Formats>> Set Hex Line Length (8)

Start of file as displayed:

	0706050403020100
00000000	8000800040000000
00000008	8000C40040000000
00000010	8000BC0040000000
00000018	C000000000010000
00000020	C000000000010001

End of file as displayed:

00001C50	8000000000010000
00001C58	C000000000010000
00001C60	80009FFF4000FFFF
00001C68	8000C40840000000
00001C70	8000BC0F4000FFFF