



# MPP Meeting

# BLMINJ Software

David Medina Godoy, BE-BI-SW



# Outline

- **System Overview**
- **Interlocks**
- **Crate Configuration & FESA instantiation**
- **Deployed System Configurations**

# System Overview

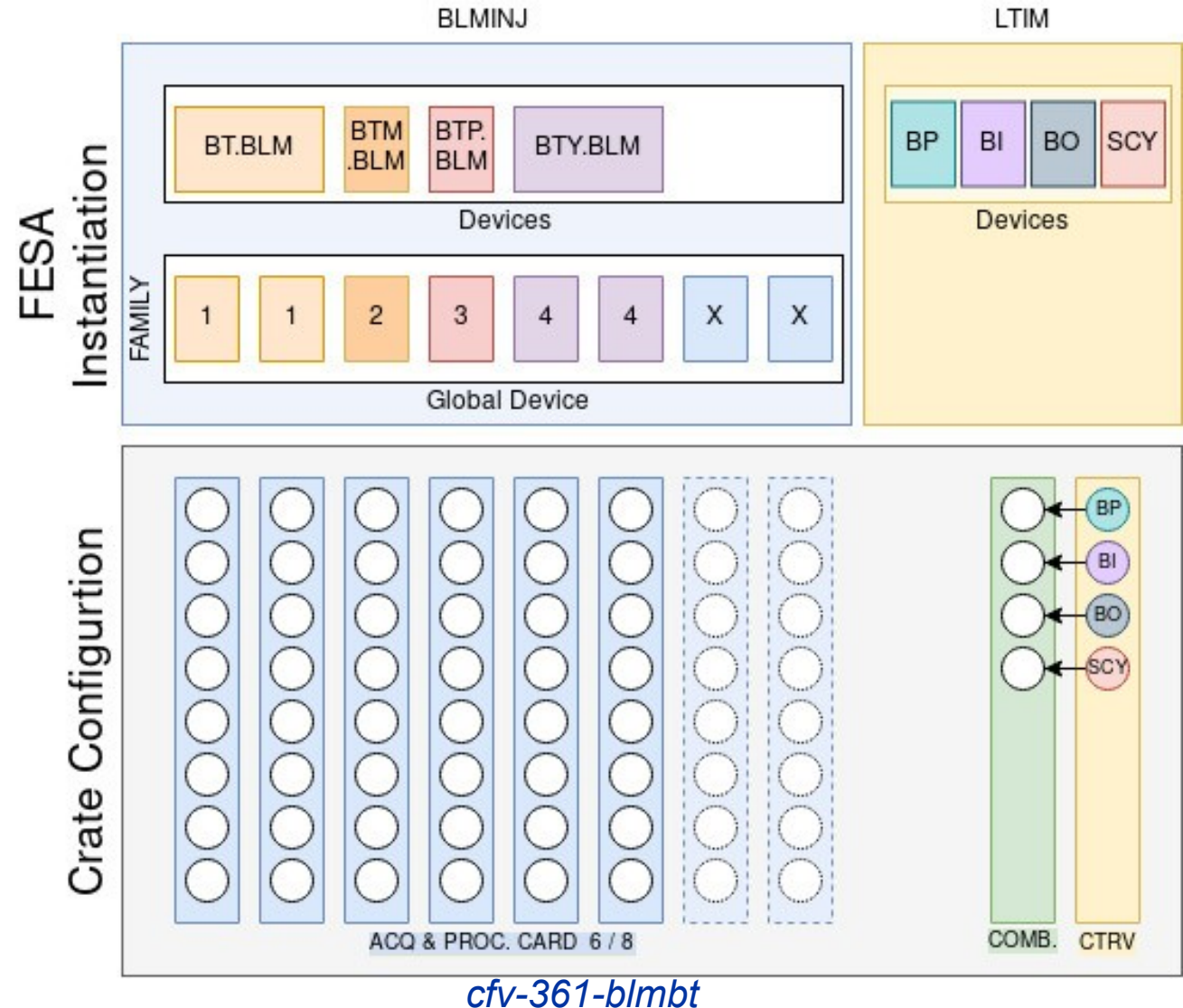
- Provides several **type of losses per cycle**:
  - **Running sums** (2us, 600us and 1ms)
  - Losses over **cycle**
  - Losses over **beam presence**
  - **Ambient** losses
- **Evolution** of the losses over the cycle
  - **Ring** configuration (PSB, PS) : 1ms/sample
  - **Transfer line** configuration (LN4, TT10, ...) : 2us/sample
- **Capture** of the losses with adjustable ...
  - **Start of recording event** :
    - *Basic Period, Beam Start, Beam End or Start of Cycle*
  - **Delay** after start event
  - **Sample Resolution** [2us - 1.2s]
- Provides **diagnostics** data for the experts

# Interlocks

- **Software thresholds** defined per **loss type**, **monitor** and **cycle**
  - Evaluation of possible SW interlock at the **end of the cycle**
  - ***Bad shots allowed before interlock*** counter **setting** provided
  - Possibility to **mask** software interlock per **loss type**, **monitor** and **cycle**
- **Hardware thresholds** defined per **loss type** and **monitor** (non multiplexed)
  - Non maskable
  - Evaluation of possible HW interlock is **immediate**
- **RBAC/MCS** protected settings: 
  - **HW/SW** thresholds, bad shot **counter** and **masks**
- Provided **alarms** include: 
  - SW Interlock (*ERROR*)
  - HW interlock (*ERROR*)
  - Beam Presence loss type masked (*WARNING*)

# Crate configuration & FESA Instantiation

- Per crate:
  - 1 combiner** card with BP, BIN, BO, SCY timing inputs
  - (Max of) **8 acq. & proc. cards** (64 monitors)
- Problem: Crates with monitors that belong to different acc. zones (InCA settings should be split).*
- Solution: Family of monitors*
  - 1 FESA device per family in the crate
  - Max of 8 families/devices** allowed (1 per card)
  - (Our **standard** configuration is **1 device per crate**)
- In **cfv-361-blmbt** we instantiate 4 devices:
  - BT.BLM (*BE\_BT acc. zone*)
  - BTM.BLM (*BTM\_DUMP acc. zone*)
  - BTP.BLM (*BTP acc. zone*)
  - BTY.BLM (*BTM BTY acc. zone*)



# Deployed Configurations

PS RING

LN4 & PSB



TT10 (SPS)

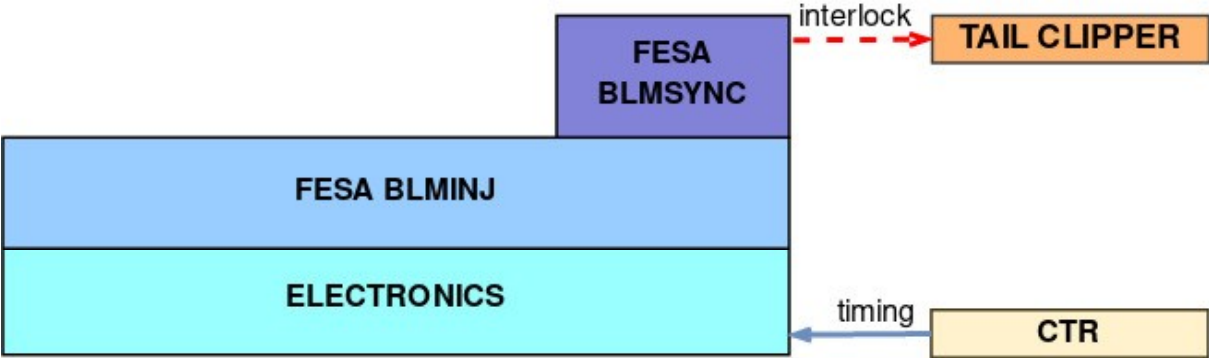


# Deployed Configurations

## LN4 & PSB



## PS RING



## TT10 (SPS)

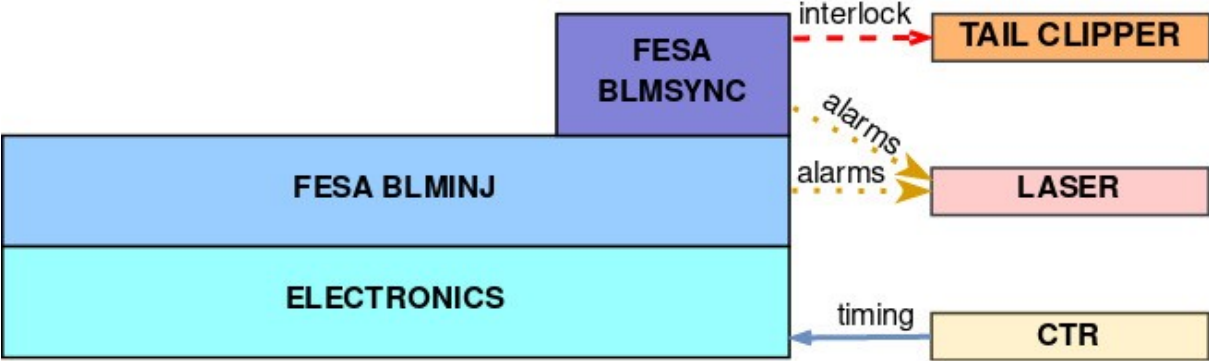


# Deployed Configurations

## LN4 & PSB



## PS RING



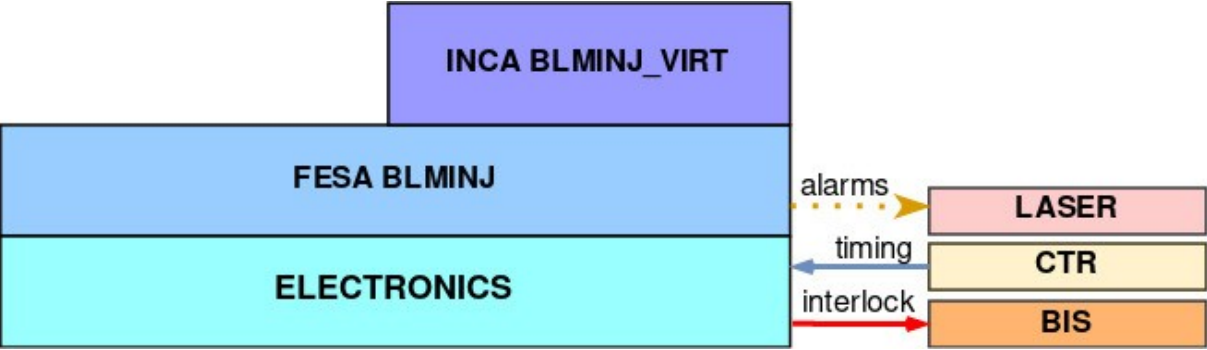
## TT10 (SPS)



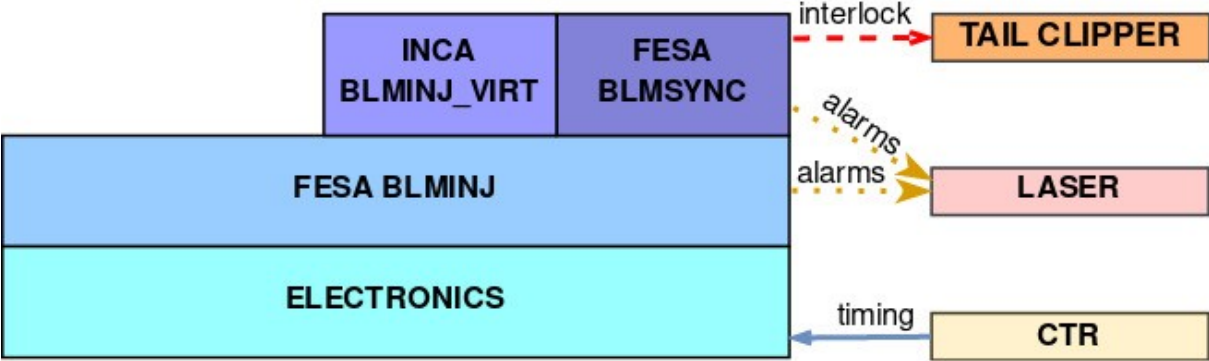


# Deployed Configurations

## LN4 & PSB



## PS RING

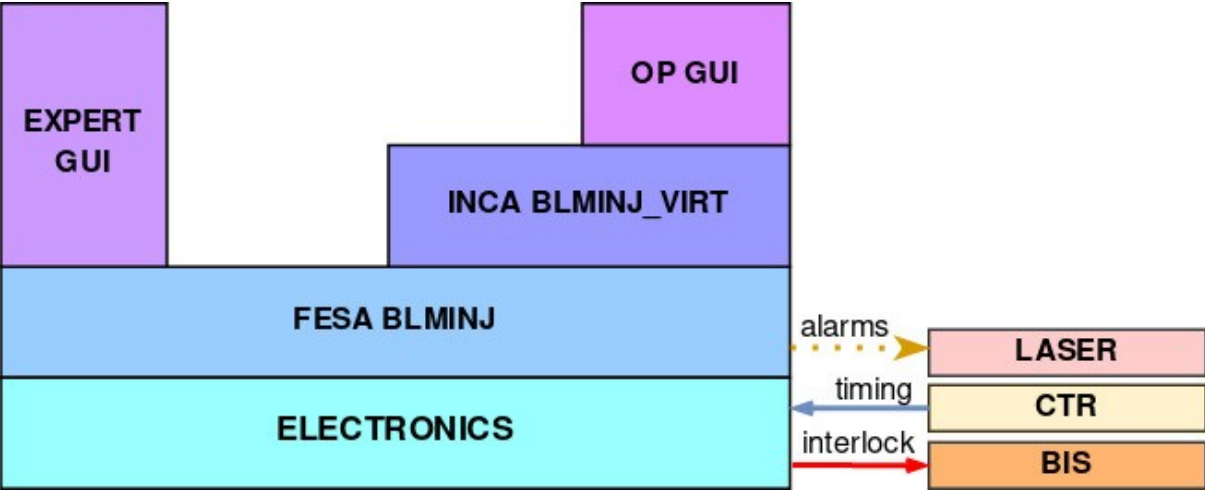


## TT10 (SPS)

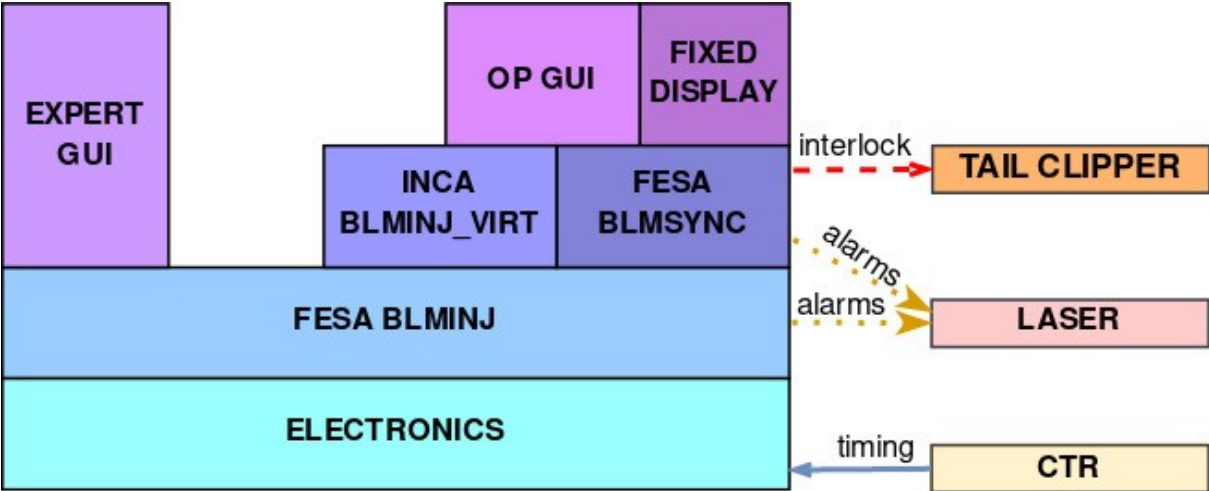


# Deployed Configurations

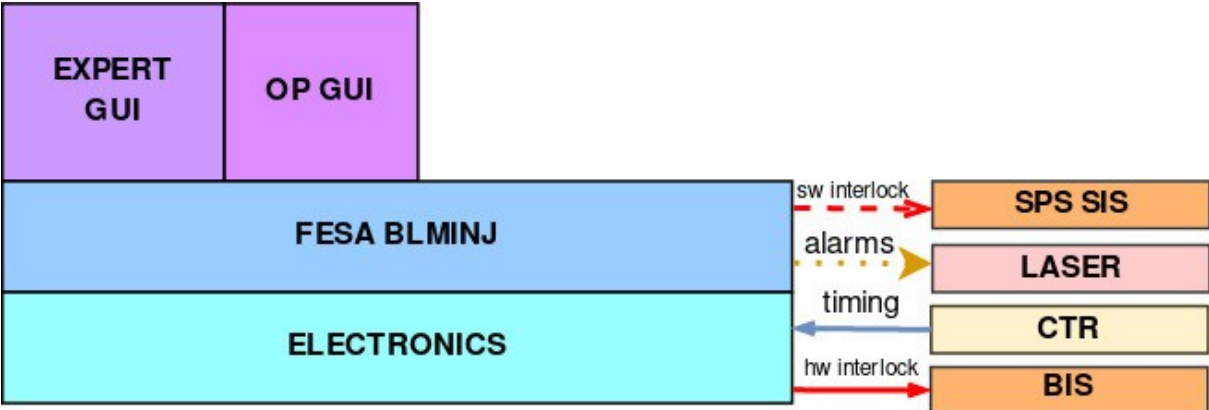
## LN4 & PSB



## PS RING

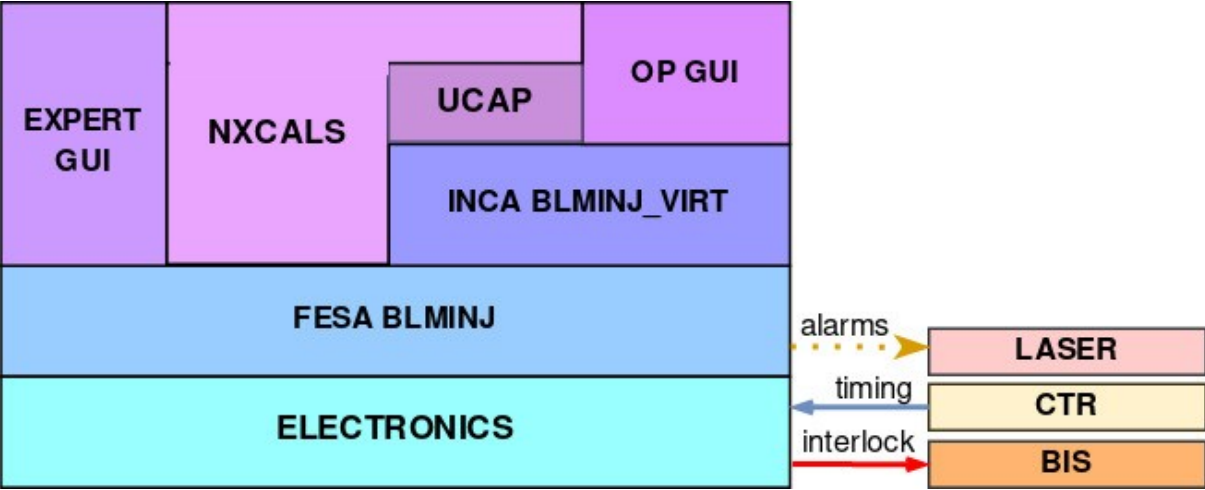


## TT10 (SPS)

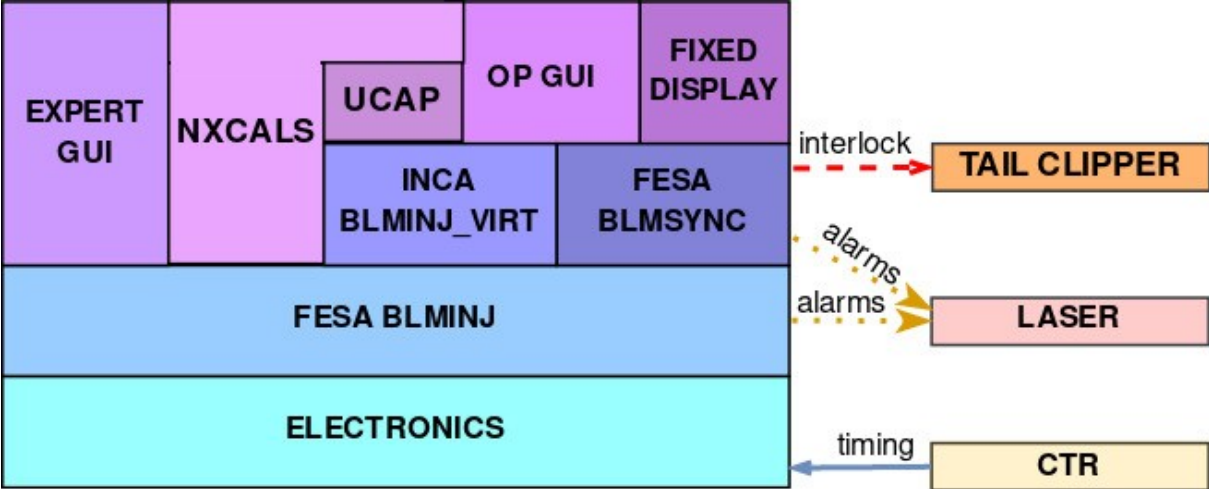


# Deployed Configurations

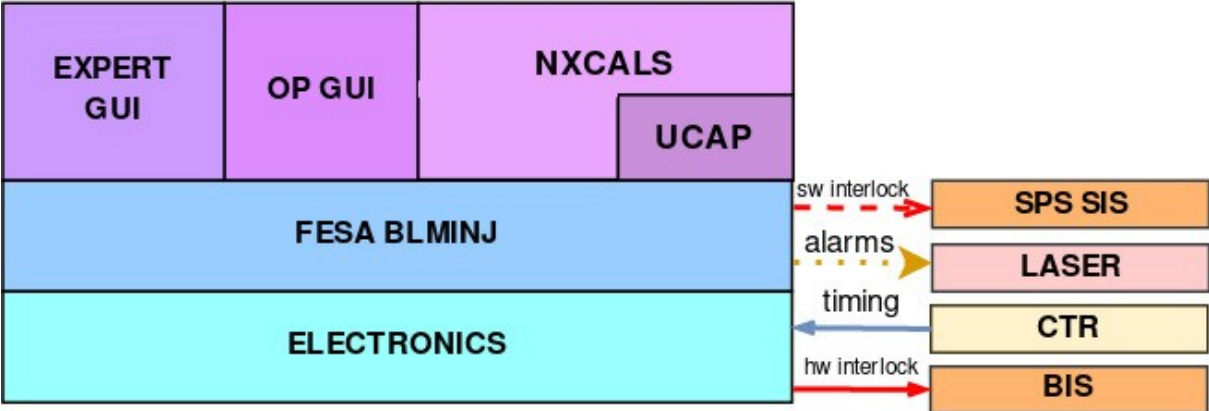
LN4 & PSB



PS RING



TT10 (SPS)



# Deployed Configurations: LN4, PSB and PS Ring

- Combiner card connected to BIS

Card \ Channel	0	1	2	3	4	5	6	7
Card 0	BR34.BLMIB.1L2.I	BR12.BLMIB.1L2.I	BR34.BLMIB.2L2.I	BR12.BLMIB.2L2.I	BR34.BLMIB.3L2.I	BR12.BLMIB.3L2.I	BR34.BLMIB.4L2.I	BR12.BLMIB.4L2.I
Card 1	BR34.BLMIB.5L2.I	BR12.BLMIB.5L2.I	BR34.BLMIB.6L2.I	BR12.BLMIB.6L2.I	BR34.BLMIB.7L2.I	BR12.BLMIB.7L2.I	BR34.BLMIB.8L2.E	BR12.BLMIB.8L2.E
Card 2	BR34.BLMIB.9L2.I	BR12.BLMIB.9L2.I	BR34.BLMIB.10L2.I	BR12.BLMIB.10L2.I	BR34.BLMIB.11L2.E	BR12.BLMIB.11L2.E	BR34.BLMIB.12L2.I	BR12.BLMIB.12L2.I
Card 3	BR34.BLMIB.13L2.I	BR12.BLMIB.13L2.I	BR34.BLMIB.14L2.E	BR12.BLMIB.14L2.E	BR34.BLMIB.15L2.E	BR12.BLMIB.15L2.E	BR34.BLMIB.16L2.I	BR12.BLMIB.16L2.I

BIS\_A BIS\_B NO\_BIS

*BLMINJ Expert GUI  
BIS select configuration*

- BLMINJ\_VIRT
  - 1 Monitor = 1 Virtual Device

BI34.BLMIB.30

ExpertSetting

1e+00

Mask

0e+00 1e+00

BI34.BLMIB.35

ExpertSetting

1e+00

Mask

0e+00 1e+00

BI34.BLMIB.1L1.E1

ExpertSetting

1e+00

Mask

0e+00 1e+00

BI34.BLMIB.1L1.E2

ExpertSetting

1e+00

Mask

0e+00 1e+00

BI34.BLMIB.1L1.E3

ExpertSetting

1e+00

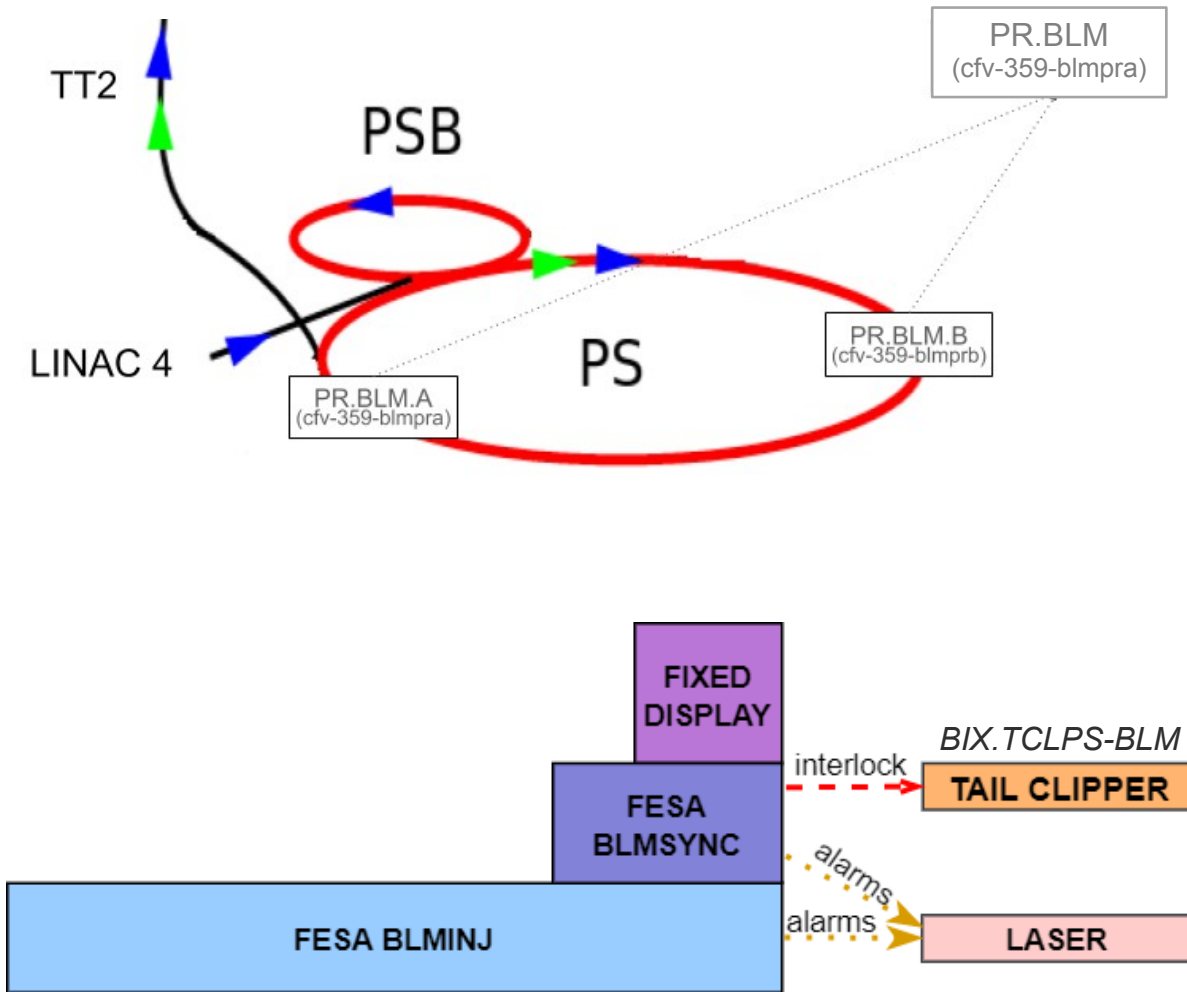
Mask

0e+00 1e+00

*BIBLMAApp (ComRAD)  
BLMINJ Virtual Settings  
Courtesy: Yu Wu*

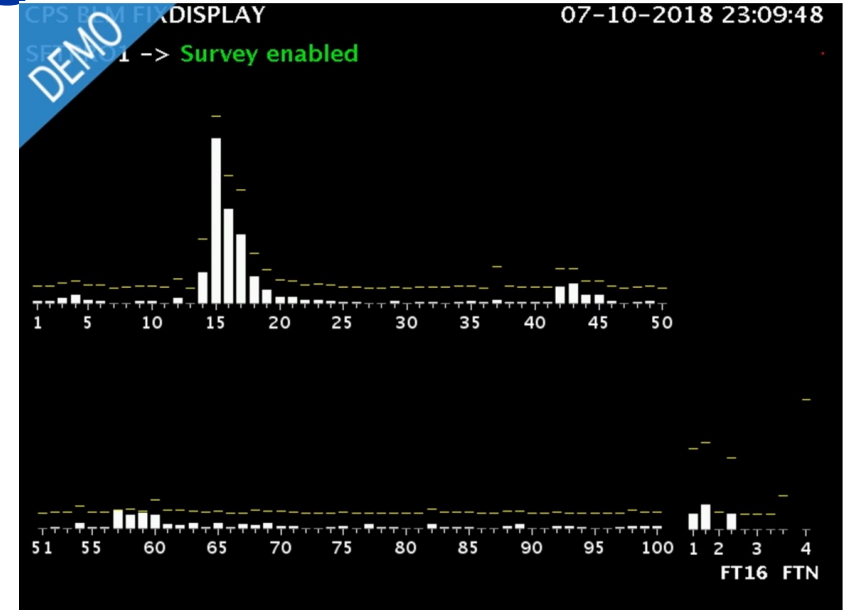
# Deployed Configurations : PS Ring

- BLMSYNC:
  - **Concentrate losses** in PS ring (i.e. 2 vme crates)
  - **Sum of the losses of all monitors interlock**
    - **Threshold, mask and counter** settings provided
  - **Monitors hw/sw interlock status** from BLMINJ
  - **Interlock capabilities** acting on tail clipper LTIM
  - (Extra) **Alarms** added:
    - sumOfLossesMasked (WARNING)
    - sumOfLossesThresholdBreached (ERROR)
    - syncAlarm (ERROR)

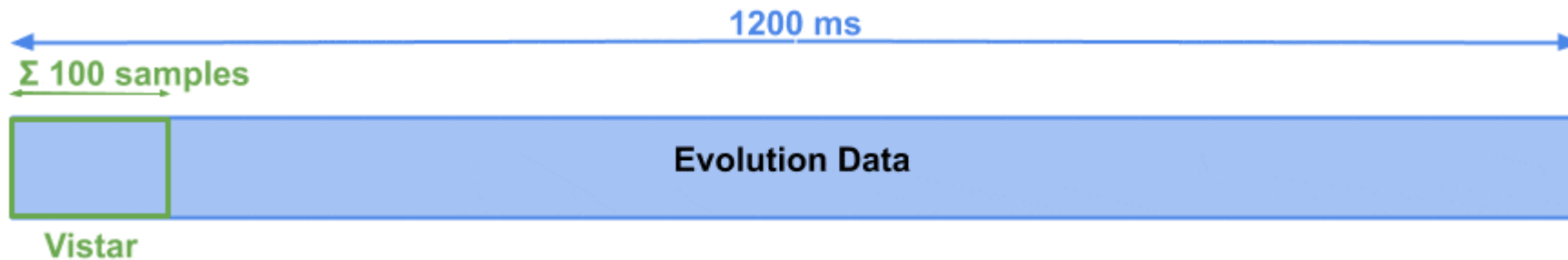


# Deployed Configurations : PS Ring

- BLMSYNC Evolution Vistar:
  - To be used in PS BLM Vistar fixed displays
  - Calculates the **sum (so far in the cycle)** of the losses in the **Evolution** data
  - Publishes every 100ms ( **10Hz** )

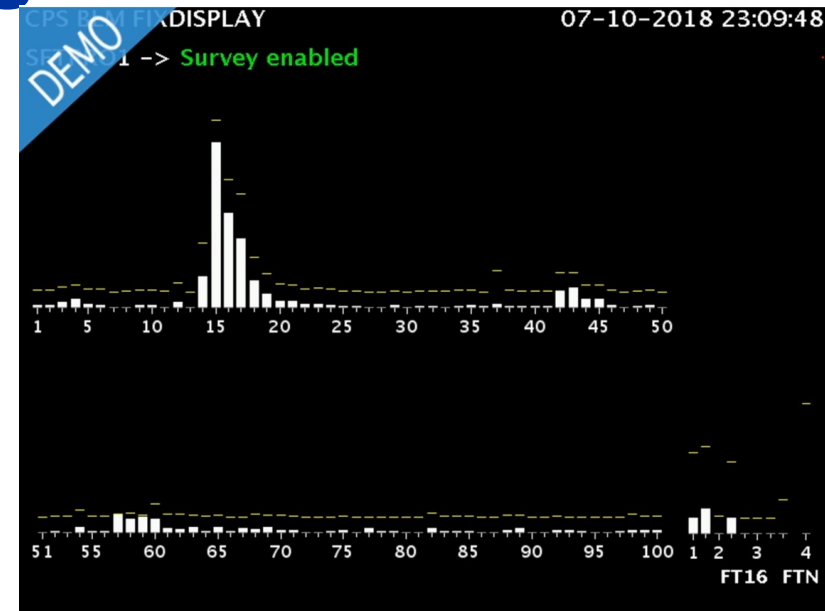


PS BLM Vistar  
(currently in development)  
Courtesy: Denis Gerard Cotte

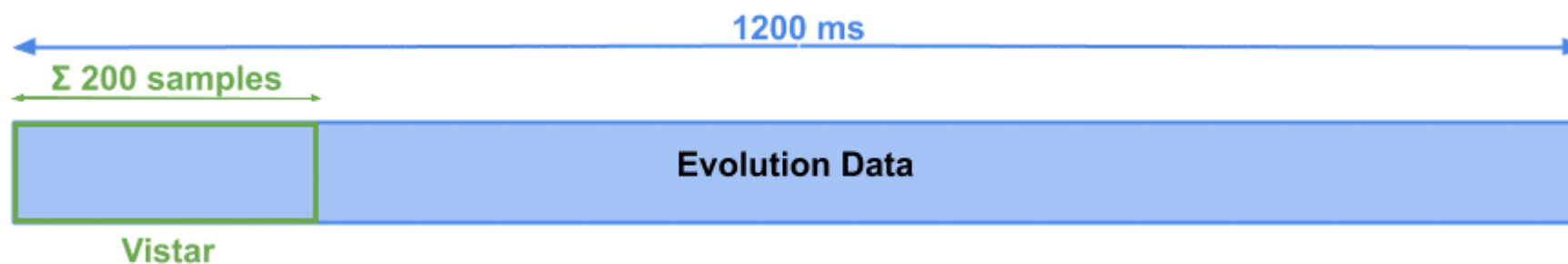


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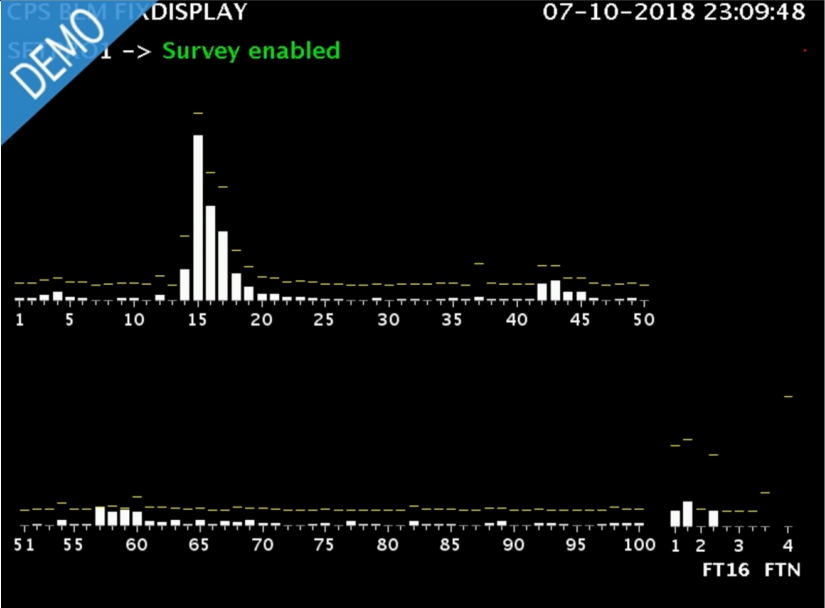


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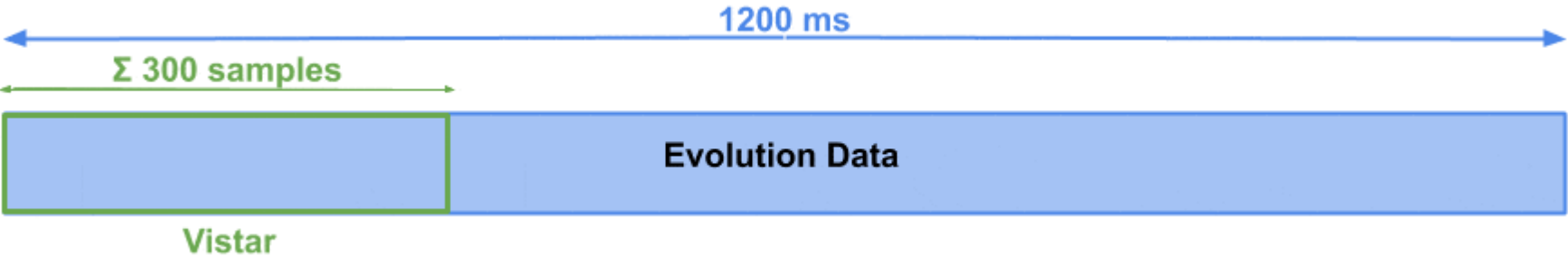


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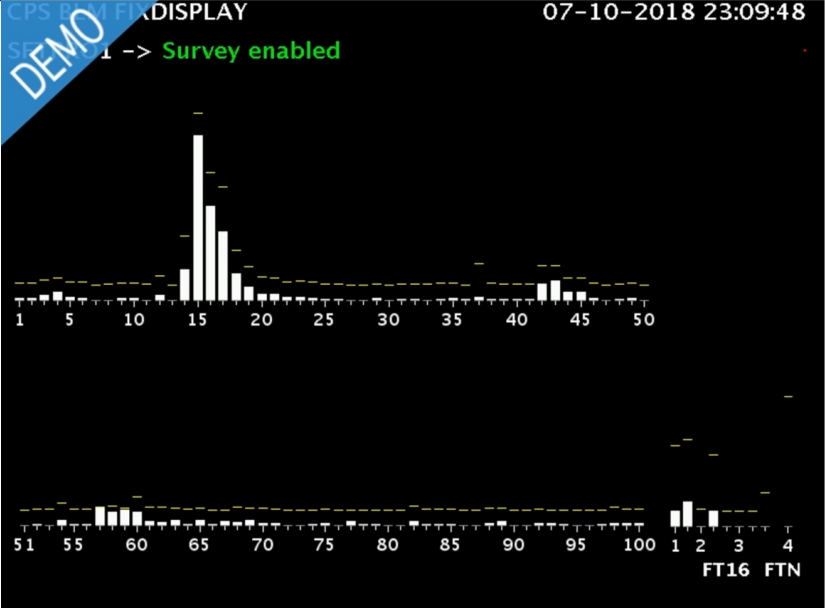
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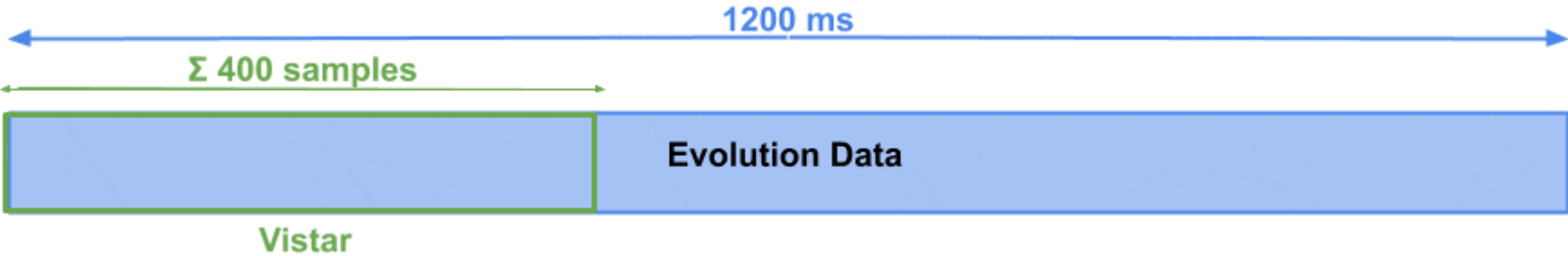


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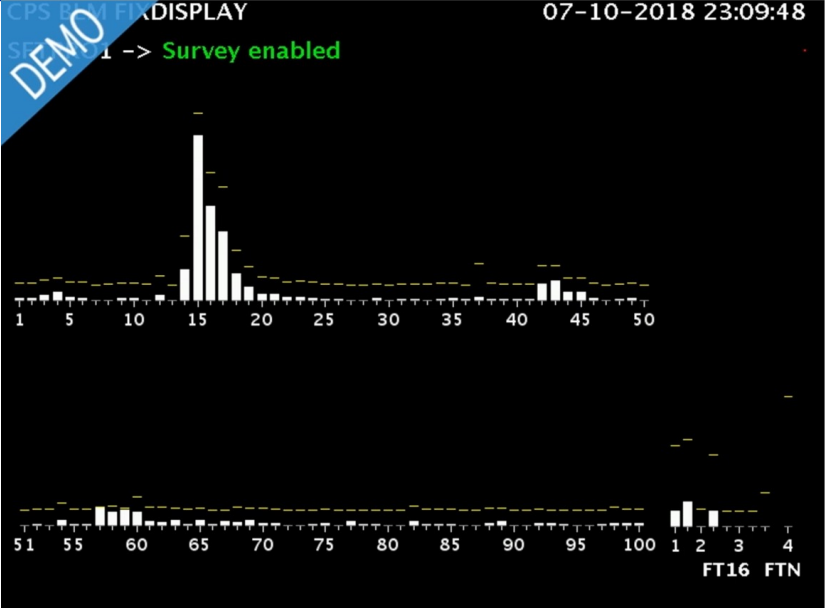


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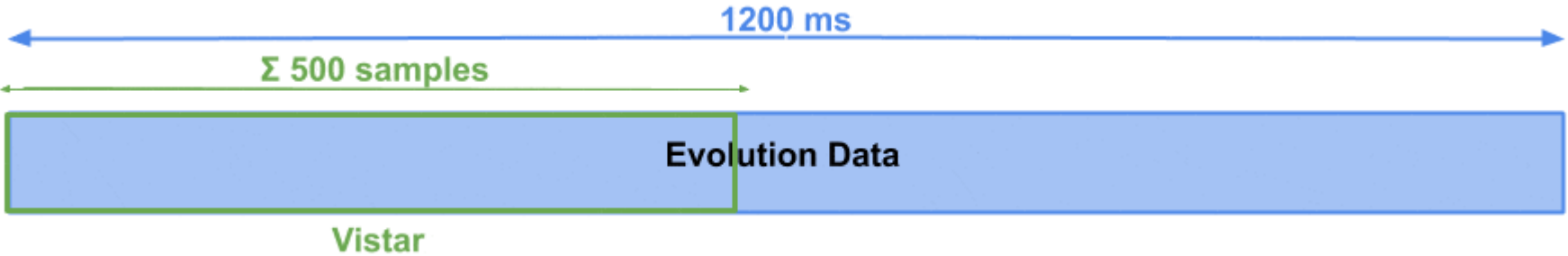


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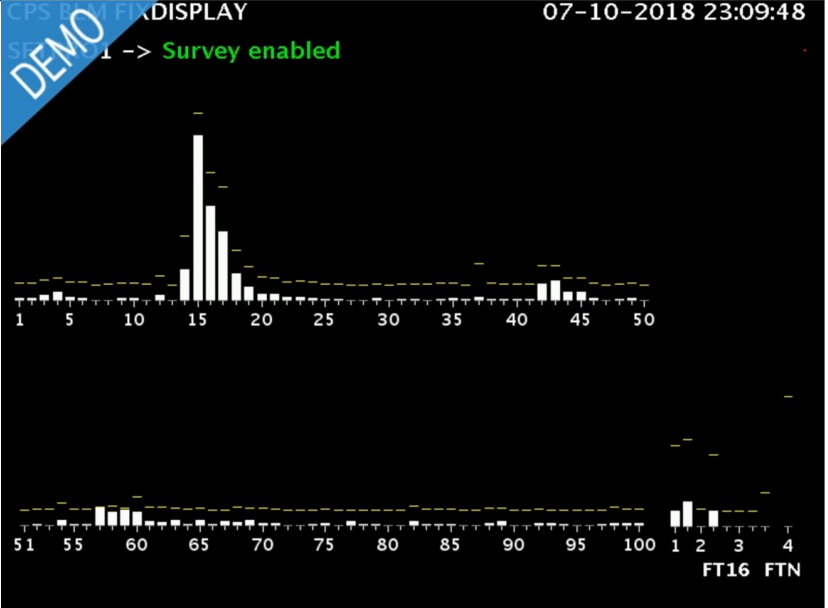


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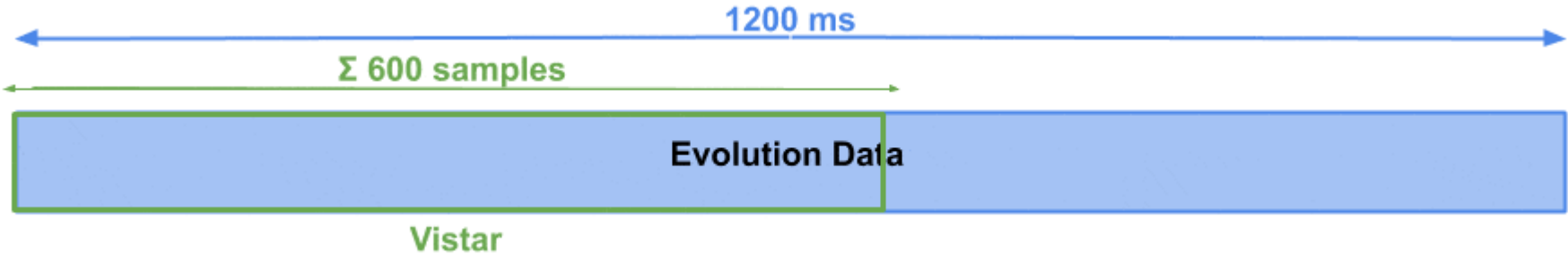


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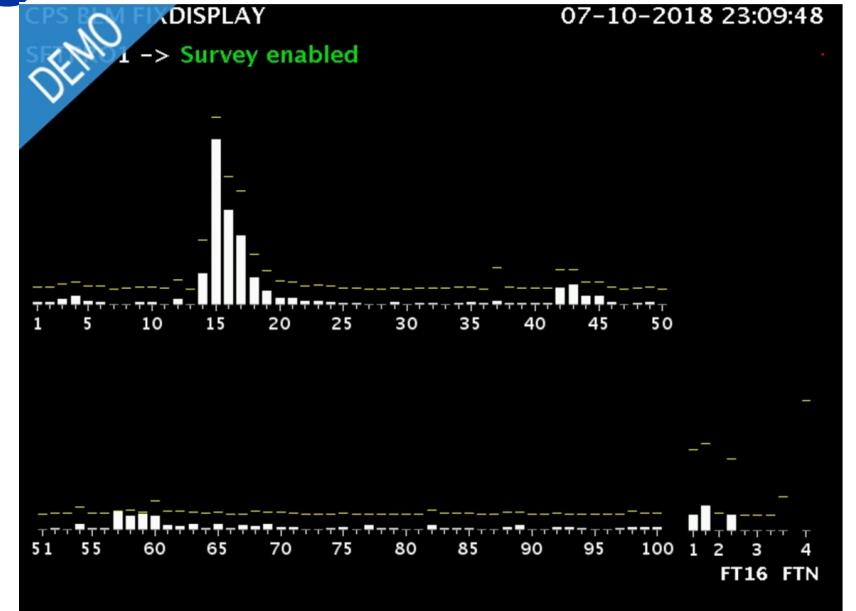


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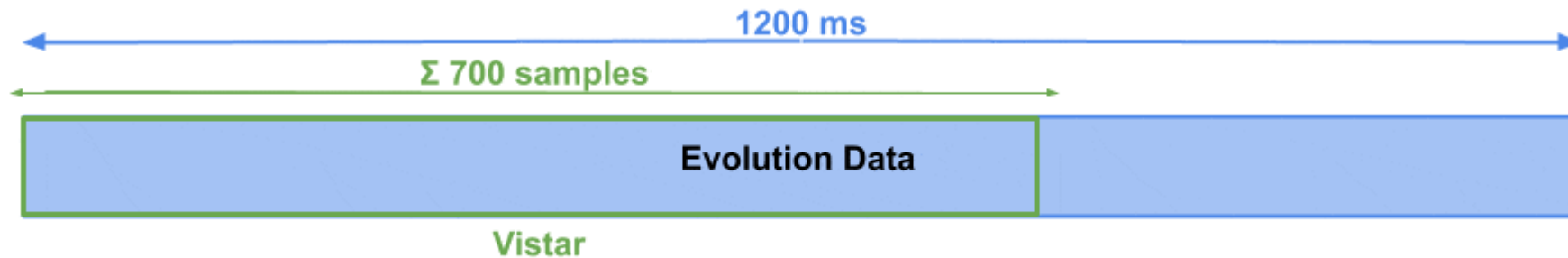


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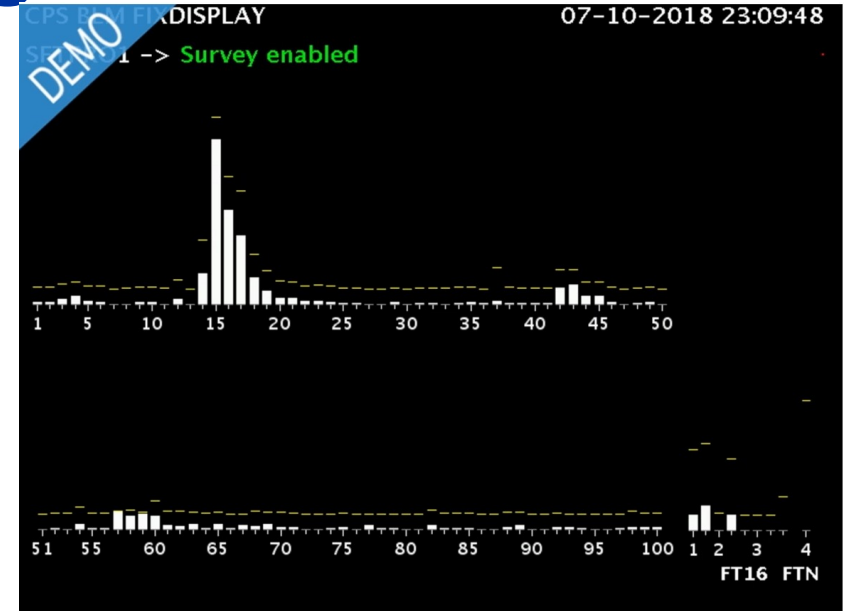


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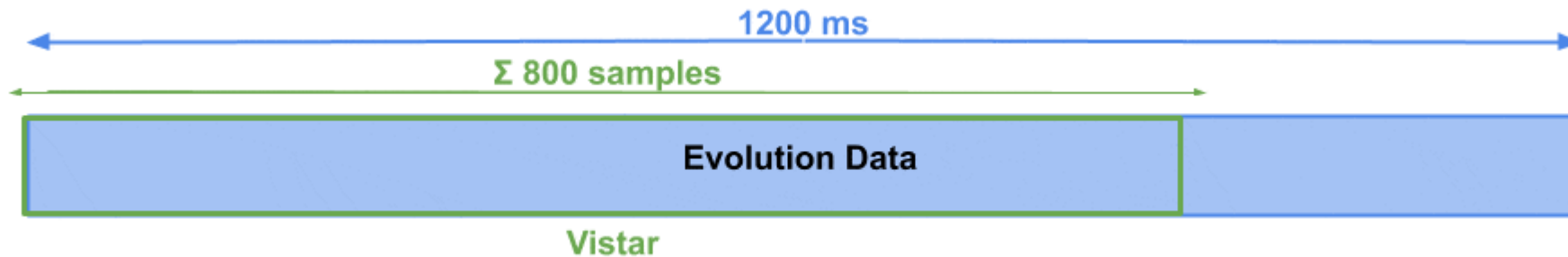


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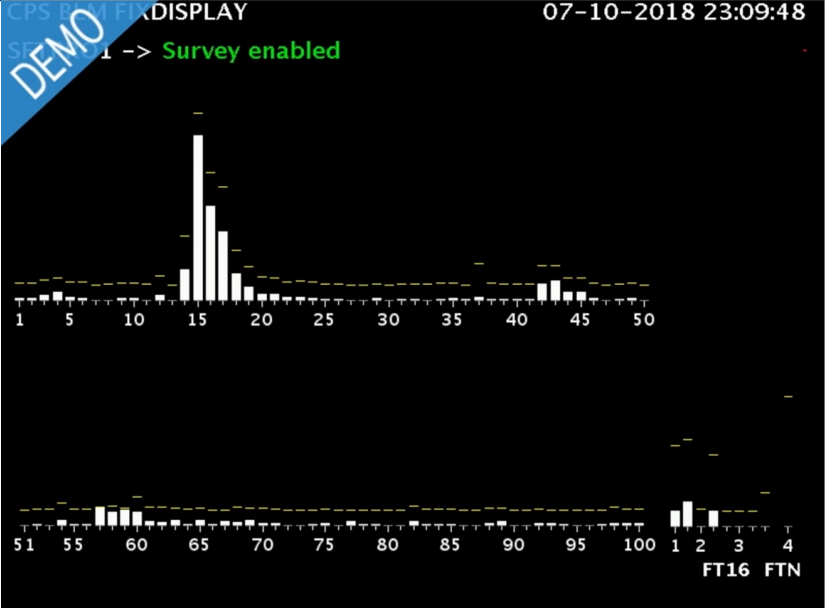


PS BLM Vistar  
(currently in development)  
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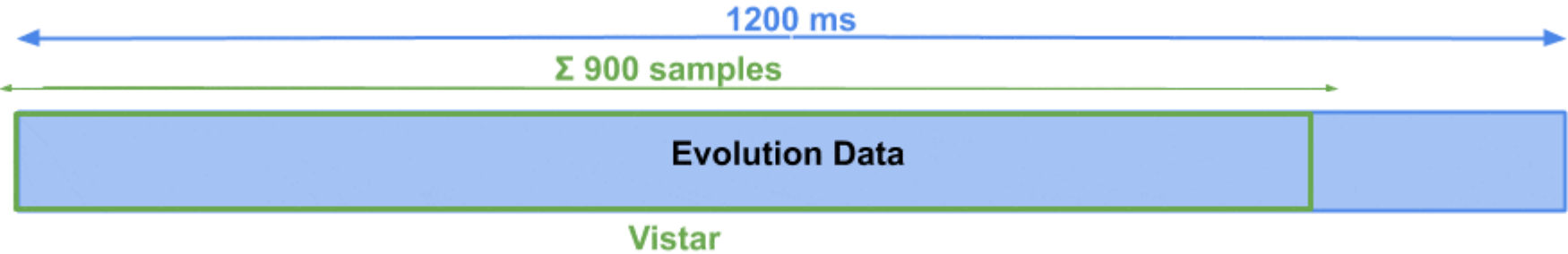


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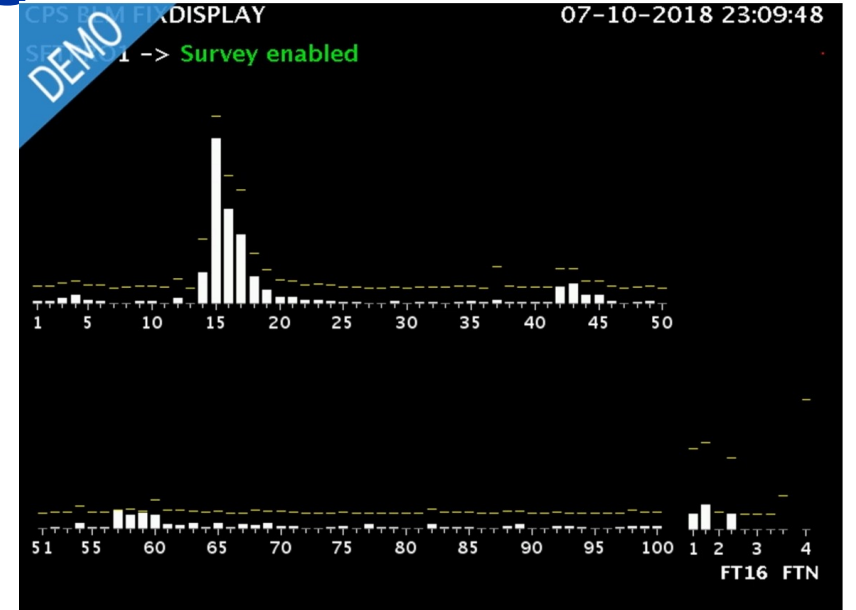


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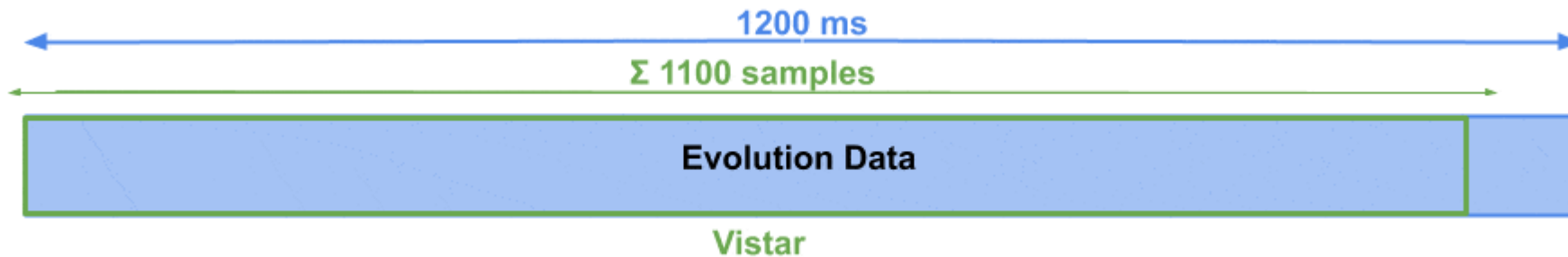


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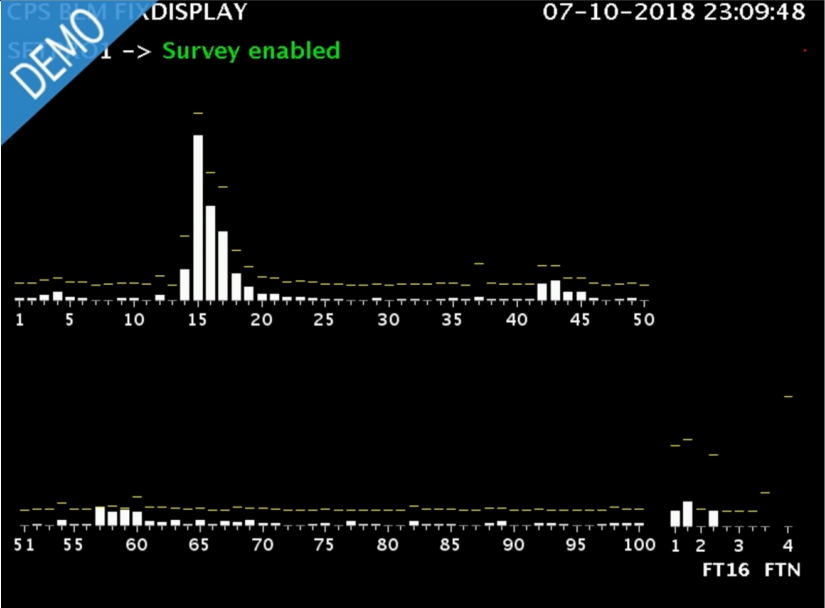


PS BLM Vistar  
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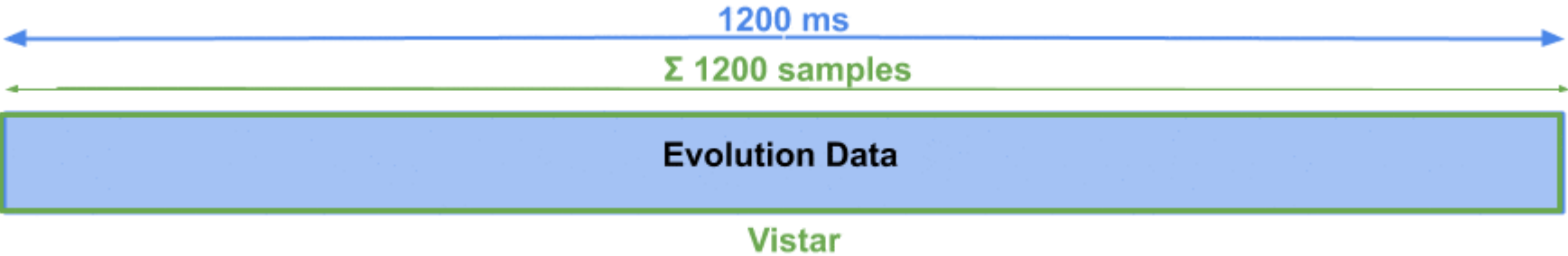


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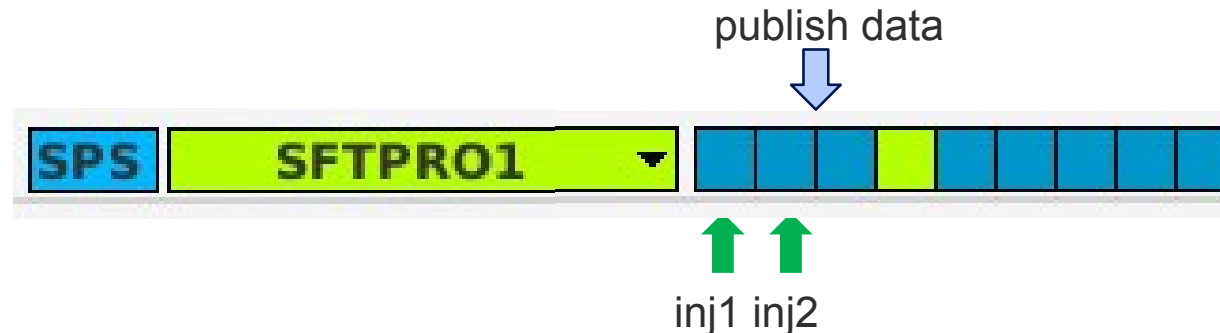
PS BLM Vistar  
(currently in development)  
Courtesy: Denis Gerard Cotte





# Deployed Configurations : TT10 (SPS)

- Only interested in **injection losses**
- **Summary Acquisition** added:
  - Provides a **summary of the injections** in the cycle
- Special **timing** configuration:
  - **BP** = SIX.W20-CT + 22ms (**2ms after injection**)
  - **SCY** = SIX.F1KLO-CT + 1002 ms (**2ms after last inj.**)



# Deployed Configurations : TT10 (SPS)

- **Interlock:**
  - BLMINJ publishes **swInterlock flag after every injection**
  - If **swInterlock = true** for injection
    - Further ones in the cycle will be inhibited by **SIS**
    - **swInterlock** will be **cleared** for the **next cycle**
  - If **threshold breached for 3 cycles** in a row:
    - **SIS** inhibits the beam



# Expert Application & Diagnostics

The screenshot displays the Expert Application & Diagnostics software interface. At the top, there is a menu bar with 'File' and 'Version' options. Below the menu bar, a table lists various test results with columns for test ID, name, and status. The table includes tests such as 'ALL', 'AD', 'LAC1', 'LAC2', 'LAC3', 'LAC4', 'LAC5', 'MD1', 'MD2', 'MD3', 'MD4', 'MD5', 'MD6', 'MD7', 'MD8', 'MD9', 'MD10', 'SITPRO1', 'SITPRO2', 'SITPRO3', 'SITPRO4', 'SITPRO5', 'SITPRO6', 'SITPRO7', 'SITPRO8', 'SITPRO9', 'SITPRO10', 'SITPRO11', 'SITPRO12', 'SITPRO13', 'SITPRO14', 'SITPRO15', 'SITPRO16', 'SITPRO17', 'SITPRO18', 'SITPRO19', 'SITPRO20', 'SITPRO21', 'SITPRO22', 'SITPRO23', 'SITPRO24', 'SITPRO25', 'SITPRO26', 'SITPRO27', 'SITPRO28', 'SITPRO29', 'SITPRO30', 'SITPRO31', 'SITPRO32', 'SITPRO33', 'SITPRO34', 'SITPRO35', 'SITPRO36', 'SITPRO37', 'SITPRO38', 'SITPRO39', 'SITPRO40', 'SITPRO41', 'SITPRO42', 'SITPRO43', 'SITPRO44', 'SITPRO45', 'SITPRO46', 'SITPRO47', 'SITPRO48', 'SITPRO49', 'SITPRO50'. Below the table, there is a 'Device - FEC' section with a dropdown menu showing 'TST.BLMINJ.BLM5.1 - cv-865-blm5'. The middle section contains several tabs: 'Acquisition', 'Parameters', 'Capture', 'Evolution', 'Setting', 'Status', 'Combiner', 'Diagnostics', 'LTIM', and 'Configuration'. The 'Diagnostics' tab is active, showing 'stamps' and 'Thresholds' settings. The 'stamps' section includes 'Device' (TST.BLMINJ.BLM5.1), 'cycleStamp' (160692009310000000 ns), 'acqStamp' (160692009430000000 ns), and 'cycleName' (CPS.USER.MD3). The 'Thresholds' section includes checkboxes for 'HW Thresholds', 'SW Thresholds', 'swinterlock.Counter', and 'Number of Loss Samples'. The bottom section features a 'Local data logging' dropdown set to 'No Logging', a 'Log File' field, and a 'Browse' button. Below this is a 'Card-Channel' selection grid with 8 channels (1-8) and checkboxes for each. The main area is a 'Loss Graph' showing a series of vertical spikes representing data loss over time. The graph title is 'Loss - Channel Pair - CPS.USER.MD9'. The x-axis is labeled 'Time' and ranges from 15:39:20 to 15:41:20. The y-axis is labeled 'Loss' and ranges from 0E0 to 6E9. At the bottom of the graph area, there is a 'Display mGy/s' checkbox, a 'Start' button, and a 'By BP' dropdown menu.

# Expert Application & Diagnostics

The screenshot displays the 'Expert Application & Diagnostics' software interface. At the top, there is a menu bar with 'File' and 'Version' options. Below the menu, a 'Global Device' section shows the device ID 'GD30000000000000000000000049372' and the device name 'TST\_BLMINJ\_BLM5.1'. A table of device parameters is visible, including channels like 'ALL', 'P0', 'DAPT0', 'DAPT1', 'DAPT2', 'DAPT3', 'DAPT4', 'DAPT5', 'DAPT6', 'DAPT7', 'DAPT8', 'DAPT9', 'DAPT10', 'DAPT11', 'DAPT12', 'DAPT13', 'DAPT14', 'DAPT15', 'DAPT16', 'DAPT17', 'DAPT18', 'DAPT19', 'DAPT20', 'DAPT21', 'DAPT22', 'DAPT23', 'DAPT24', 'DAPT25', 'DAPT26', 'DAPT27', 'DAPT28', 'DAPT29', 'DAPT30', 'DAPT31', 'DAPT32', 'DAPT33', 'DAPT34', 'DAPT35', 'DAPT36', 'DAPT37', 'DAPT38', 'DAPT39', 'DAPT40', 'DAPT41', 'DAPT42', 'DAPT43', 'DAPT44', 'DAPT45', 'DAPT46', 'DAPT47', 'DAPT48', 'DAPT49', 'DAPT50', 'DAPT51', 'DAPT52', 'DAPT53', 'DAPT54', 'DAPT55', 'DAPT56', 'DAPT57', 'DAPT58', 'DAPT59', 'DAPT60', 'DAPT61', 'DAPT62', 'DAPT63', 'DAPT64', 'DAPT65', 'DAPT66', 'DAPT67', 'DAPT68', 'DAPT69', 'DAPT70', 'DAPT71', 'DAPT72', 'DAPT73', 'DAPT74', 'DAPT75', 'DAPT76', 'DAPT77', 'DAPT78', 'DAPT79', 'DAPT80', 'DAPT81', 'DAPT82', 'DAPT83', 'DAPT84', 'DAPT85', 'DAPT86', 'DAPT87', 'DAPT88', 'DAPT89', 'DAPT90', 'DAPT91', 'DAPT92', 'DAPT93', 'DAPT94', 'DAPT95', 'DAPT96', 'DAPT97', 'DAPT98', 'DAPT99', 'DAPT100'. Below this, there are tabs for 'Acquisition', 'Parameters', 'Capture', 'Evolution', 'Setting', 'Status', 'Combiner', 'Diagnostics', 'ITIM', and 'Configuration'. The 'Setting' tab is active, showing two tables: 'Offset Current Setting' and 'Analog Threshold Setting'. Both tables have columns for 'Card \ Channel' (1-8) and values for each channel. The 'Offset Current Setting' table shows values of 150 for Card 1 and 0 for other cards. The 'Analog Threshold Setting' table shows values of 155 for Card 1 and 0 for other cards. Below each table are buttons for 'GET ALL' and 'SET Card 1, Channel 1'.

Card \ Channel	1	2	3	4	5	6	7	8
Card 1	150	0	0	0	0	0	0	0
Card 2	0	0	0	0	0	0	0	0
Card 3	0	0	0	0	0	0	0	0
Card 4	0	0	0	0	0	0	0	0
Card 5	0	0	0	0	0	0	0	0
Card 6	0	0	0	0	0	0	0	0
Card 7	0	0	0	0	0	0	0	0
Card 8	0	0	0	0	0	0	0	0

Card \ Channel	1	2	3	4	5	6	7	8
Card 1	155	0	0	0	0	0	0	0
Card 2	0	0	0	0	0	0	0	0
Card 3	0	0	0	0	0	0	0	0
Card 4	0	0	0	0	0	0	0	0
Card 5	0	0	0	0	0	0	0	0
Card 6	0	0	0	0	0	0	0	0
Card 7	0	0	0	0	0	0	0	0
Card 8	0	0	0	0	0	0	0	0



# Expert Application & Diagnostics

The screenshot displays the MPP - BLMINJ Software Expert Application & Diagnostics interface. The main window is titled "Expert Application & Diagnostics" and features a multi-tabbed environment. The top menu bar includes "File" and "Version". The left sidebar contains navigation icons for various functions. The main workspace is divided into several sections:

- Top Section:** A data table with columns for parameters and values. The table includes rows for "ALL", "AC", "BMT1", "BMT2", "BMT3", "DPT4", and "FMS".
- Middle Section:** Configuration fields for "Device" (TST.BLMINJ.BLMS.1), "dcStamp" (1606923780700000000 as), "logStamp" (1606923781900000000 as), and "cycleName" (CPSUSER.MD1). A "Select Cycle" dropdown is set to "Active".
- Bottom Section:** A graph titled "Evolution - CPSUSER.MD1". The y-axis is labeled "Joules" and ranges from 0E0 to 3.5E7. The x-axis is labeled "Samples" and ranges from 0 to 1000. The graph shows a single data point at approximately 200 samples with a value of about 3.5E7 Joules. Below the graph are several checkboxes for display options: "Display mGy/s", "Display nb of samples", "Get only next", "Show previous", "Store", "Cumulative Joules", and "Sum All channels". There are also buttons for "Acquisition", "Stop", "By Cycle", "Store", and "Refresh".

# Expert Application & Diagnostics

The screenshot displays the MPP - BLMINJ Software interface, which is used for expert applications and diagnostics. The main window is titled "Global Device" and shows a table of device parameters. The table has columns for various components and their status. Below the table, there are several control panels for Power Supply and Relays.

Component	Value
HL	1040
RD	1040
LAC1	1041
LAC2	1042
LAC3	1043
LAC4	1044
LAC5	1045
LAC6	1046
LAC7	1047
LAC8	1048
LAC9	1049
LAC10	1050
LAC11	1051
LAC12	1052
LAC13	1053
LAC14	1054
LAC15	1055
LAC16	1056
LAC17	1057
LAC18	1058
LAC19	1059
LAC20	1060
LAC21	1061
LAC22	1062
LAC23	1063
LAC24	1064
LAC25	1065
LAC26	1066
LAC27	1067
LAC28	1068
LAC29	1069
LAC30	1070
LAC31	1071
LAC32	1072
LAC33	1073
LAC34	1074
LAC35	1075
LAC36	1076
LAC37	1077
LAC38	1078
LAC39	1079
LAC40	1080
LAC41	1081
LAC42	1082
LAC43	1083
LAC44	1084
LAC45	1085
LAC46	1086
LAC47	1087
LAC48	1088
LAC49	1089
LAC50	1090
LAC51	1091
LAC52	1092
LAC53	1093
LAC54	1094
LAC55	1095
LAC56	1096
LAC57	1097
LAC58	1098
LAC59	1099
LAC60	1100
LAC61	1101
LAC62	1102
LAC63	1103
LAC64	1104
LAC65	1105
LAC66	1106
LAC67	1107
LAC68	1108
LAC69	1109
LAC70	1110
LAC71	1111
LAC72	1112
LAC73	1113
LAC74	1114
LAC75	1115
LAC76	1116
LAC77	1117
LAC78	1118
LAC79	1119
LAC80	1120
LAC81	1121
LAC82	1122
LAC83	1123
LAC84	1124
LAC85	1125
LAC86	1126
LAC87	1127
LAC88	1128
LAC89	1129
LAC90	1130
LAC91	1131
LAC92	1132
LAC93	1133
LAC94	1134
LAC95	1135
LAC96	1136
LAC97	1137
LAC98	1138
LAC99	1139
LAC100	1140

The interface also includes a "Power Supply" section with controls for Card 1, Card 2, and Card 3. Each card has buttons for CB1, CB2, and DCDC. The "Relay" section has controls for Card 1, Card 2, and Card 3, with buttons for Relay Ch1 through Relay Ch8. The status of each control is indicated by a green "ON" or red "OFF" label.









# Expert Application & Diagnostics

The screenshot displays the 'Diagnostics' tab of the MPP - BLMINJ Software. The interface shows a hierarchical tree on the left and a main data area with several tables.

**Global Device Information:**

- Global Device: GD00000000000000000000000049372
- Device - FEC: TST.BLMINJ.BLM5.1 - ch-865-bim5
- Status: OK

**BLEDP Diagnostic Data:**

Field Name	ipDevAddress	ipFWTag	ipFWDate	ipChpID	ipTemperature	ipH.mditly
Card 1	1	v.0.0.0	1/17/20 r.294	0x79000018ca65a901	36.8 °C	0.7 %
Card 2	0	v.0.0.0	0/0/0 r.0	0x00	-39.7 °C	-2.0 %
Card 3	0	v.0.0.0	0/0/0 r.0	0x00	-39.7 °C	-2.0 %

**BLEPT Diagnostic Data:**

Field Name	ipDevAddress	ipFWTag	ipFWDate	ipChpID	ipTemperature	ipPageTemperature
Card 1	4	v.1.1.6	4/11/20 r.0	0x2f00000a67120628	31.5 °C	31.0 °C
Card 2	5	v.1.1.6	4/11/20 r.0	0x9d000006r1d53778	32.5 °C	39.0 °C
Card 3	6	v.1.1.6	4/11/20 r.0	0xb100000a59916128	31.3 °C	35.0 °C

# Expert Application & Diagnostics

The screenshot displays the MPP - BLMINJ Software interface. At the top, there are multiple menu bars (File, Version) and a toolbar. The main window shows diagnostic data for a Global Device.

**Global Device Information:**

- Global Device ID: GD00000000000000000000000049372
- Device: FEC
- Device Name: TST.BLMINJ.BLM5.1
- Device Path: c:\895\blm5
- Status: OK

**Power Table:**

Field Name	CB1 +5V	CB1 -5V	CB2 +5V	CB2 -5V	-1 V	High Voltage	Status	Relay Status
Card 1	672 mA	468 mA	685 mA	443 mA	0 mA	0 V	OK	OK
Card 2	0 mA	0 mA	0 mA	0 mA	0 V	0 V	OK	OK
Card 3	0 mA	0 mA	0 mA	0 mA	0 V	0 V	OK	OK

**Offset Current Table:**

Field Name	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Card 1	150	150	150	150	150	150	150	150
Card 2	0	0	0	0	0	0	0	0
Card 3	0	0	0	0	0	0	0	0

**Analog Threshold Table:**

Field Name	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Card 1	155	155	155	155	155	155	155	155
Card 2	0	0	0	0	0	0	0	0
Card 3	0	0	0	0	0	0	0	0

**Saturation Table:**

Field Name	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Card 1	0	0	0	0	0	0	0	0
Card 2	0	0	0	0	0	0	0	0
Card 3	0	0	0	0	0	0	0	0

**Direct Acquisition Table:**

Field Name	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Card 1	0	0	0	0	0	0	0	0
Card 2	0	0	0	0	0	0	0	0
Card 3	0	0	0	0	0	0	0	0

# Expert Application & Diagnostics

The screenshot shows the MPP-Blminj Software Expert Application & Diagnostics interface. The main window displays a 'Global Device' status window with a table of device parameters and a 'Diagnostics' tab showing BLEDP and BLEPT data for three cards.

**Global Device Parameters Table:**

Param	Value	Param	Value	Param	Value	Param	Value	Param	Value	Param	Value	Param	Value	Param	Value	Param	Value	Param	Value	Param	Value																																																																																																																																																																																																																																																																									
AC	7	FINC	14	L-CMOD	21	MD4	27	MD16	34	MD32	41	MD64	48	MD128	55	MD256	62	MD512	69	MD1024	76	MD2048	83	MD4096	90	MD8192	97	MD16384	104	MD32768	111	MD65536	118	MD131072	125	MD262144	132	MD524288	139	MD1048576	146	MD2097152	153	MD4194304	160	MD8388608	167	MD16777216	174	MD33554432	181	MD67108864	188	MD134217728	195	MD268435456	202	MD536870912	209	MD1073741824	216	MD2147483648	223	MD4294967296	230	MD8589934592	237	MD17179869184	244	MD34359738368	251	MD68719476736	258	MD137438953472	265	MD274877906944	272	MD549755813888	279	MD1099511627776	286	MD2199023255552	293	MD4398046511104	300	MD8796093022208	307	MD1759218604416	314	MD3518437208832	321	MD7036874017664	328	MD14073748035328	335	MD28147496070656	342	MD56294992141312	349	MD112589984282624	356	MD225179968565248	363	MD450359937130496	370	MD900719874260992	377	MD1801439748521984	384	MD3602879497043968	391	MD7205758994087936	398	MD14411517988175808	405	MD28823035976351616	412	MD57646071952703232	419	MD115292143905406464	426	MD230584287810812928	433	MD461168575621625856	440	MD922337151643251712	447	MD1844674313286503424	454	MD3689348626573006848	461	MD7378697253146013696	468	MD14757394506286027392	475	MD29514789012572044784	482	MD59029578025144089568	489	MD118059156050288179136	496	MD236118312100576358272	503	MD472236624201152716544	510	MD944473248402305433088	517	MD1888946496804610866176	524	MD3777892993609221732352	531	MD7555785987218443464704	538	MD1511157197443688692928	545	MD3022314394887377385856	552	MD6044628789774754771712	559	MD1208925757954950953424	566	MD2417851515909901906848	573	MD4835703031819803813696	580	MD9671406063639607627392	587	MD19342812127278015254784	594	MD38685624254556030509568	601	MD773712485091120610111136	608	MD154742497018224122022272	615	MD309484994036440244044544	622	MD618969988072880488089088	629	MD1237939976153760976178176	636	MD2475879952307521952356352	643	MD4951759904615043904712704	650	MD9903519809230087809425408	657	MD19807039618460155618850912	664	MD39614079236920311237701824	671	MD79228158473840622475403648	678	MD15845631694768124950887296	685	MD3169126338773624990177536	692	MD633825267754724998135072	699	MD12676505355094499962704448	706	MD25353010710188999925408896	713	MD50706021420377999850817792	720	MD10141204280755999701635584	727	MD2028240856151199940327116608	734	MD4056481712303199880644332224	741	MD8112963424606399761288664464	748	MD16225926849212795522577328896	755	MD32451853698425591045154557792	762	MD64903707396851183080309115584	769	MD1298074147937023664061822311168	776	MD2596148295874047328122364442336	783	MD519229659174809465624472888672	790	MD1038459183496189131248945777536	797	MD2076918366992378262497895555168	804	MD4153836733984756524995791111136	811	MD8307673467969513049991582222272	818	MD1661534693933902609993164444544	825	MD3323069387867805219996328889088	832	MD6646138775735610439992657778176	839	MD132922775514722208799953155553536	846	MD2658455510294444175999063111111168	853	MD531691102058888835199812622222336	860	MD10633822411777777039962544444672	867	MD212676448235555540799250888881344	874	MD425352896471111181598501777772688	881	MD85070579294222236319700355555531712	888	MD17014115858844447263940071111111224	895	MD34028231717688894527880014222222448	902	MD6805646343537778905576002844444896	909	MD13611292687115557811151520056888992	916	MD2722258574231111562230304001137777936	923	MD544451714846222312446060800227555472	930	MD10889034289232442489212120045511111488	937	MD217780685784648849784242400911111976	944	MD435561371569297699568484800182223952	951	MD87112274313859539913696960036447904	958	MD174224586277191198273921920072889808	965	MD34844917255438239654784384014577773632	972	MD69689834510876479309568768029155557264	979	MD13937966901775295861911536058311114528	986	MD2787593380355159132382267211662229056	993	MD5575186760710303164764544422324458112	1000	MD111503753214260632952888884444482424

**BLEDP SFP1 Data Table:**

FieldName	dpSfp1SerialNumber	dpSfp1PartNumber	dpSfp1Temperature	dpSfp1Vcc	dpSfp1TxPower	dpSfp1RxPower	dpSfp1TxBias	dpSfp1Warnings
Card 1	FTB148918064	FT3405D	42.4 °C	3312 mV	193 uW	369 uW	475	🚫 🚫 🚫 🚫 🚫
Card 2			0.0 °C	0 mV	0 uW	0 uW	0	🚫 🚫 🚫 🚫 🚫
Card 3			0.0 °C	0 mV	0 uW	0 uW	0	🚫 🚫 🚫 🚫 🚫

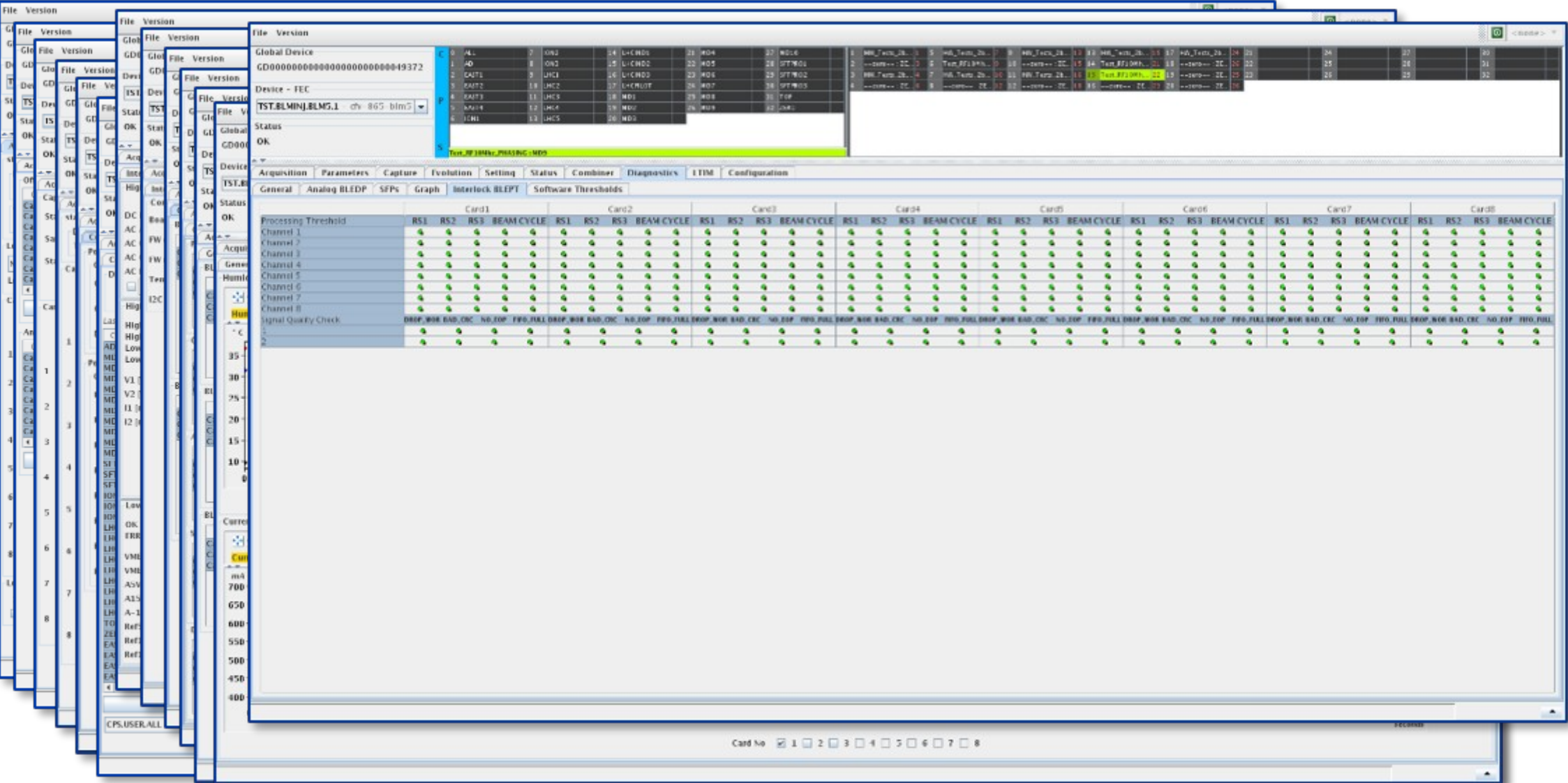
**BLEDP SFP2 Data Table:**

FieldName	dpSfp2SerialNumber	dpSfp2PartNumber	dpSfp2Temperature	dpSfp2Vcc	dpSfp2TxPower	dpSfp2RxPower	dpSfp2TxBias	dpSfp2Warnings
Card 1	PN17H06	FCLF 8521 3	0.0 °C	0 mV	0 uW	0 uW	0	🚫 🚫 🚫 🚫 🚫
Card 2			0.0 °C	0 mV	0 uW	0 uW	0	🚫 🚫 🚫 🚫 🚫
Card 3			0.0 °C	0 mV	0 uW	0 uW	0	🚫 🚫 🚫 🚫 🚫

**BLEPT SFP1 Data Table:**

FieldName	psfp1SerialNumber	psfp1PartNumber	psfp1Temperature	psfp1Vcc	psfp1TxPower	psfp1RxPower	psfp1TxBias	psfp1Warnings
Card 1	S8 DTF43	0 10202160	45.6 °C	3271 mV	500 uW	206 uW	10368	🚫 🚫 🚫 🚫 🚫
Card 2	S8 DTF43	212416111F1B	38.3 °C	3328 mV	247 uW	0 uW	12544	🚫 🚫 🚫 🚫 🚫
Card 3	S8 DTF43	115716111F1B	36.8 °C	3320 mV	257 uW	0 uW	12800	🚫 🚫 🚫 🚫 🚫

# Expert Application & Diagnostics



# Expert Application & Diagnostics

Global Device: GD000000000000000000000000-49372  
 Device: FEC  
 TST.BLMINJ.BLM5.1 cv-REG-blm5

Acquisition Parameters Capture Evolution Setting Status Combiner Diagnostics LTIM Configuration

General Analog BLEDP SFPs Graph Interlock BLEPT Software Thresholds

Processing Threshold	Card1						Card2					
	RS1	RS2	RS3	BEAM	CYCLE	AMBIENT	RS1	RS2	RS3	BEAM	CYCLE	AMBIENT
Channel 1	4.15E-1	0E0	3.97E-1	0E0	3.97E-1	0E0	4.75E3	0E0	3.27E3	0E0	0E0	0E0
Channel 2	4.18E-1	0E0	3.98E-1	0E0	3.97E-1	0E0	4.76E3	0E0	3.28E3	0E0	0E0	0E0
Channel 3	4.17E-1	0E0	3.96E-1	0E0	3.96E-1	0E0	4.74E3	0E0	3.27E3	0E0	0E0	0E0
Channel 4	4.2E-1	0E0	3.98E-1	0E0	3.98E-1	0E0	4.77E3	0E0	3.28E3	0E0	0E0	0E0
Channel 5	4.17E-1	0E0	3.96E-1	0E0	3.96E-1	0E0	4.74E3	0E0	3.26E3	0E0	0E0	0E0
Channel 6	4.18E-1	0E0	3.97E-1	0E0	3.96E-1	0E0	4.74E3	0E0	3.27E3	0E0	0E0	0E0
Channel 7	4.19E-1	0E0	3.98E-1	0E0	3.97E-1	0E0	4.75E3	0E0	3.27E3	0E0	0E0	0E0
Channel 8	4.18E-1	0E0	3.97E-1	0E0	3.97E-1	0E0	4.75E3	0E0	3.27E3	0E0	0E0	0E0

Processing Threshold	Card3						Card4					
	RS1	RS2	RS3	BEAM	CYCLE	AMBIENT	RS1	RS2	RS3	BEAM	CYCLE	AMBIENT
Channel 1	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 2	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 3	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 4	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 5	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 6	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 7	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0
Channel 8	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0	0E0

FREEZE

Card No:  1  2  3  4  5  6  7  8

# Expert Application & Diagnostics

Global Device: TST.BLMINJ.BLM5.1 - ctv-865-blm5

Status: OK

Acquisition Parameters Capture Evolution Setting Status Combiner Diagnostics LTIM Configuration

BSN

Device: BK.SBP-865-BLMS

delay: 0

loadEvent: FX.SBP-CT

omask: 2

pwidth:

outEnabled:

GET SET

BSN

Device: BK.SBN-865-BLMS

delay: 9

loadEvent: FX.SCY-CT

omask: 4

pwidth:

outEnabled:

GET SET

BOUT

Device: BK.BOUT-865-BLMS

delay: 2

loadEvent: FX.BLT-CT

omask: 0

pwidth:

outEnabled:

GET SET

SCY

Device: BK.SCY-865-BLMS

delay: 0

loadEvent: FX.SCY-CT

omask: 16

pwidth:

outEnabled:

GET SET

Get everything (please)





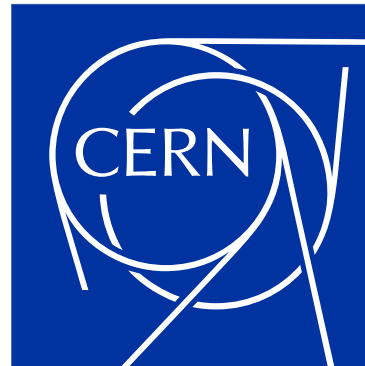


# Conclusion

- Highly **configurable** system
- Adapted to the needs of **HW experts** and **operators**
- System **validated** in **LN4** and **PSB** dry runs

THANKS!!

*Questions?*



[home.cern](http://home.cern)