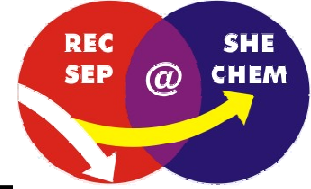


Data Acquisition and Analysis at TASCA

**J.M. Gates for the Data Acquisition and
Analysis workgroup**



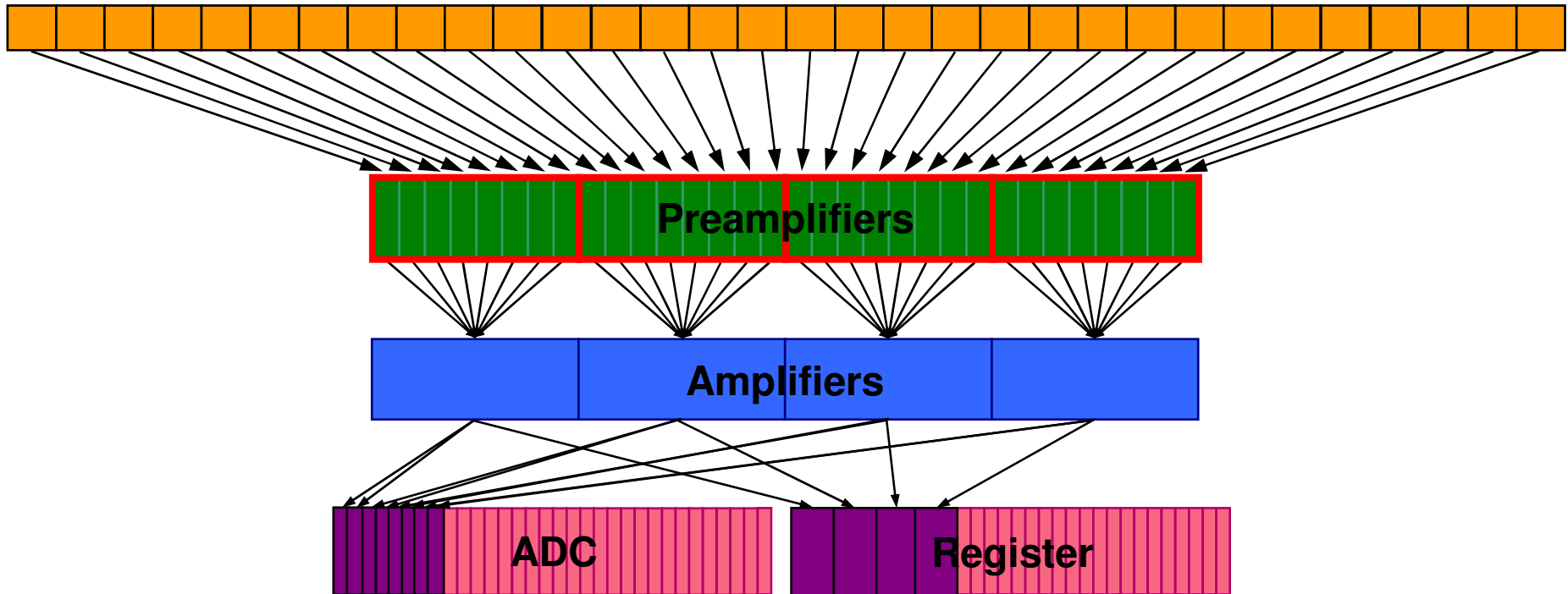
- **Jan Dvorak** - **LBLNL**
- **Hans Essel** - **GSI**
- **Jacklyn Gates** - **TUM**
- **Alexander Gorshkov** - **TUM**
- **Reimar Graeger** - **TUM**
- **Ken Gregorich** - **LBLNL**
- **Nikolaus Kurz** - **GSI**
- **Andreas Türler** - **TUM**
- **Alexander Yakushev** - **TUM**



Develop a data acquisition and analysis system for TASCA that is flexible enough to be used with multiple detection apparatus

- **Electronics**
- **Acquisition**
- **Analysis**

Compact Top Detectors



- **Data:**
 - Time
 - ADC
 - Register

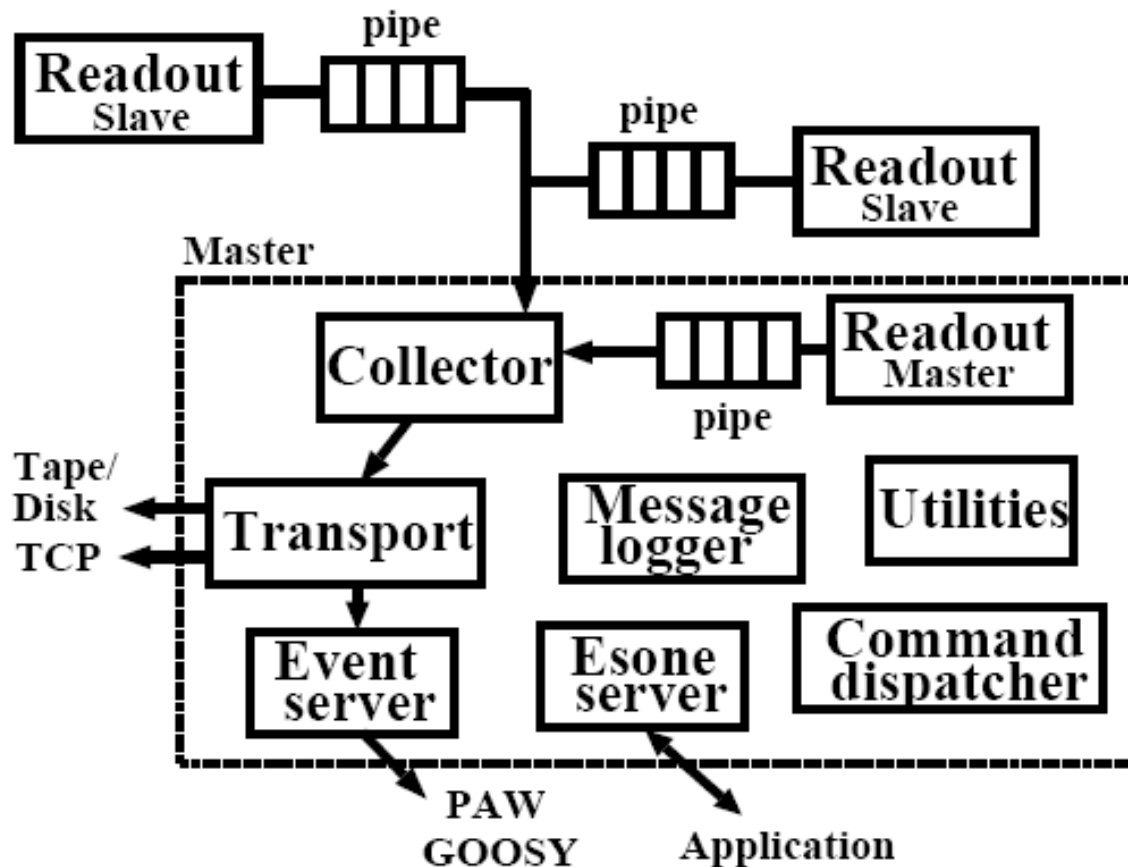
Register 0		Strip at Register Value:								ADC:Chan	
Reg #	bits	0	1	2	3	4	5	6	7	A(H)	F(L)
0	0-2	T0	T1	T2	T3	T4	T5	T6	T7	0:00	0:01
1	3-5	T8	T9	T10	T11	T12	T13	T14	T15	0:02	0:03
2	6-8	T16	T17	T18	T19	T20	T21	T22	T23	0:04	0:05
3	9-11	T24	T25	T26	T27	T28	T29	T30	T31	0:06	0:07
4	12-14	B0	B1	B2	B3	B4	B5	B6	B7	0:08	0:09
	15										
5	16-18	B8	B9	B10	B11	B12	B13	B14	B15	0:10	0:11
6	19-21	B16	B17	B18	B19	B20	B21	B22	B23	0:12	0:13
7	22-24	B24	B25	B26	B27	B28	B29	B30	B31	0:14	0:15
8	25-27	T32	T33	T34	T35	T36	T37	T38	T39	0:16	0:17
9	28-30	T40	T41	T42	T43	T44	T45	T46	T47	0:18	0:19
	31										

Register 1		Strip at Register Value:								ADC:Chan	
Reg #	bits	0	1	2	3	4	5	6	7	A(H)	F(L)
0	0-2	T48	T49	T50	T51	T52	T53	T54	T55	0:20	0:21
1	3-5	T56	T57	T58	T59	T60	T61	T62	T63	0:22	0:23
2	6-8	B32	B33	B34	B35	B36	B37	B38	B39	0:24	0:25
3	9-11	B40	B41	B42	B43	B44	B45	B46	B47	0:26	0:27
4	12-14	B48	B49	B50	B51	B52	B53	B54	B55	0:28	0:29
	15										
5	16-18	B56	B57	B58	B59	B60	B61	B62	B63	0:30	0:31
6	19-21										
7	22-24										
8	25-27										
9	28-30										
	31										



- **Multi-Branch System (MBS):**
 - **Standard data acquisition system at GSI**
 - **In-house support**
 - **Suitable for experiments with a mixture of CAMAC, Fastbus and VME crates**
 - **Scalable**

Software Components



- **Readout:**
 - Triggered from GSI trigger module
 - Reads data from local crate and writes data into subevent pipe
- **Collector:**
 - Composes events from subevent pipes
 - Formats GSI buffers
 - Histogramming
 - Early data analysis
- **Transport:**
 - Writes all data buffers to disk and/or network
- **Event Server:**
 - Sends data to connected clients



- **Standard analysis system at GSI**
- **Applicable to on- and off-line analysis**

- **Provides real-time on-line histograms**

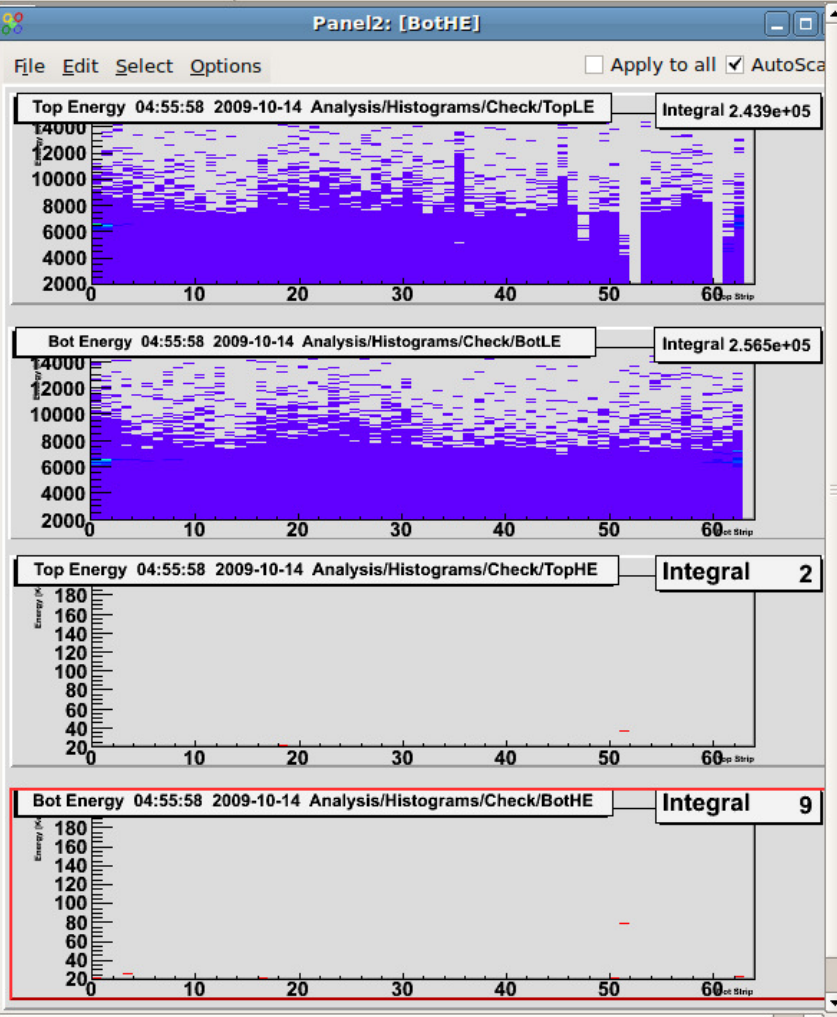
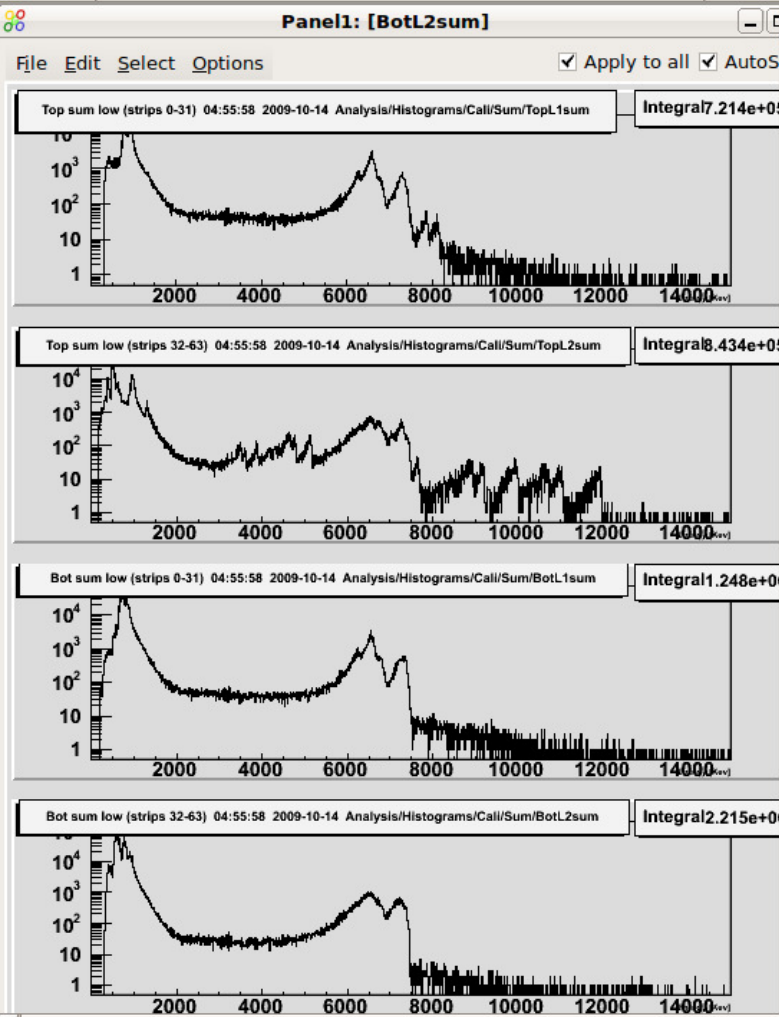
Go4 v4.3.0 @jack <Controller>

File Tools Analysis Settings Windows Help

Toolbar with icons for file operations, analysis tools, and window management. Includes a 'STOP' button and a 'Divide Pad' control.

Browser

- Workspace
- Analysis
 - Histograms
 - Unpack
 - Tree
 - Cali
 - Sum
 - TopLH
 - BotLH
 - TopL
 - TopH
 - BotL
 - BotH
 - TopL1sum
 - TopH1sum
 - BotL1sum
 - BotH1sum
 - TopL2sum
 - TopH2sum
 - BotL2sum
 - BotH2sum
 - TopL
 - TopH
 - BotL
 - BotH
 - Check
 - TopLE
 - TopHE
 - BotLE
 - BotHE
 - Time
 - Anl
 - Conditions
 - Parameters
 - DynamicLists
 - Trees

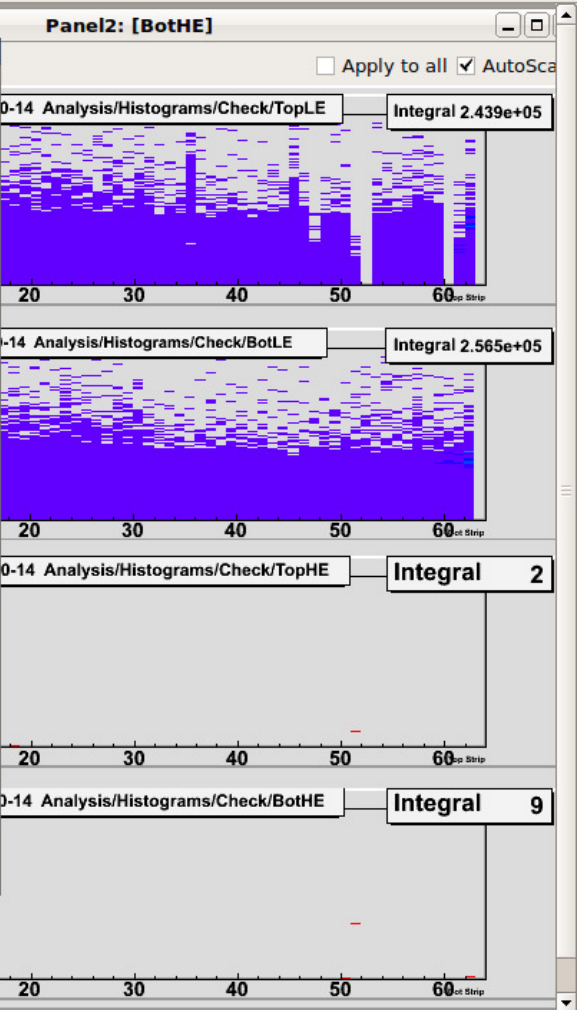
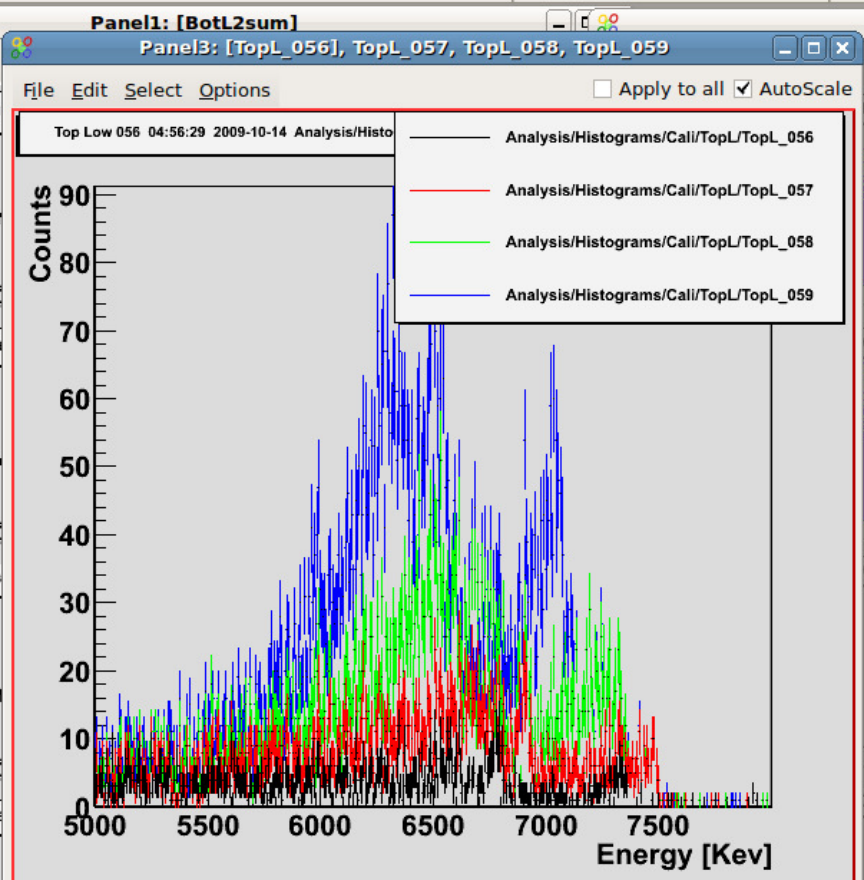
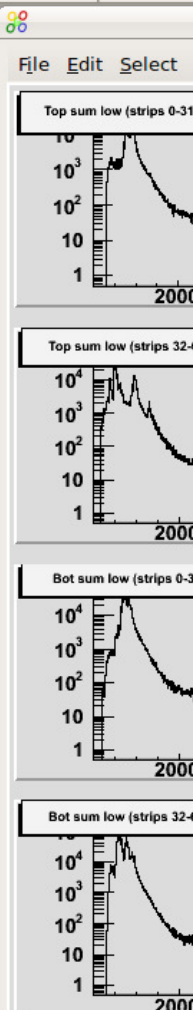


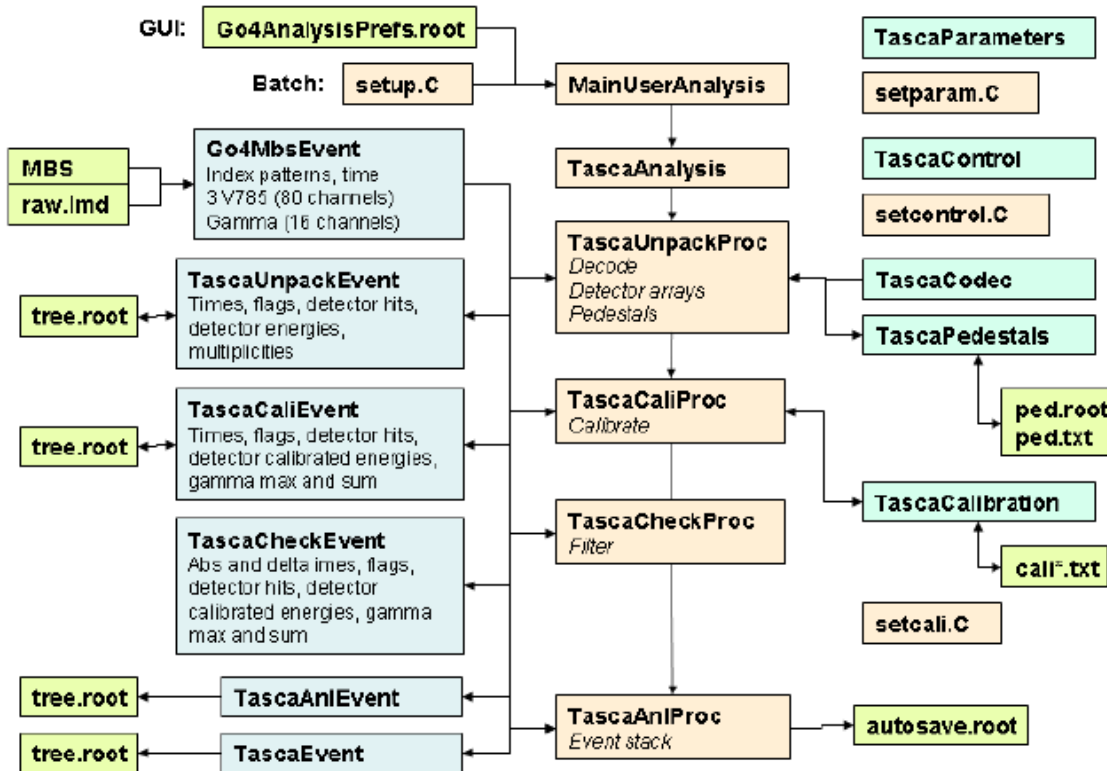
Go4 v4.3.0 @jack <Controller>

File Tools Analysis Settings Windows Help

Toolbar with icons for file operations, analysis tools, and window management. Includes a 'STOP' button and a 'Divide Pad' control.

- Browser
- Name
 - TopL_034
 - TopL_035
 - TopL_036
 - TopL_037
 - TopL_038
 - TopL_039
 - TopL_040
 - TopL_041
 - TopL_042
 - TopL_043
 - TopL_044
 - TopL_045
 - TopL_046
 - TopL_047
 - TopL_048
 - TopL_049
 - TopL_050
 - TopL_051
 - TopL_052
 - TopL_053
 - TopL_054
 - TopL_055
 - TopL_056
 - TopL_057
 - TopL_058
 - TopL_059
 - TopL_060
 - TopL_061
 - TopL_062
 - TopL_063
 - TopH
 - BotL
 - BotH
 - Check
 - TopLE
 - TopHE





Go4 analysis steps

- **Unpack**
 - Decode ADC, register and gamma values
 - Map multiplexed channels
- **Calibrate**
- **Check**
 - Sort events according to EVR-, α - or SF-like
- **Analyze**
 - Search for decay chains (off-line only)

Future: on-line detection of potential r- α correlations linked to fast beam shut-off



- **GSI/TUM**
- **LBNL**

- **C/root based codes**
- **3-4 step analysis:**
 - **Unpack**
 - **Decode ADC, register and gamma values**
 - **Map multiplexed channels**
 - **Calibrate**
 - **Check**
 - **Sort events according to EVR-, α - or SF-like**
 - **Analyze**
 - **Search for decay chains**



Develop a data acquisition and analysis system for TASCA that is flexible enough to be used with multiple detection apparatus

- **Electronics**
 - Used for FPD and COMPACT
- **Acquisition**
 - MBS
- **Analysis**
 - GO4
 - Independent
- **Future: on-line detection of potential r - α correlations linked to fast beam shut-off**