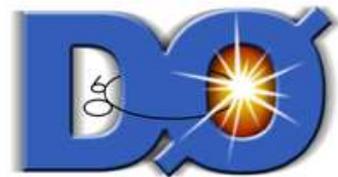


Level 2 Trigger

Overview

L2 for DAQ shifters ...



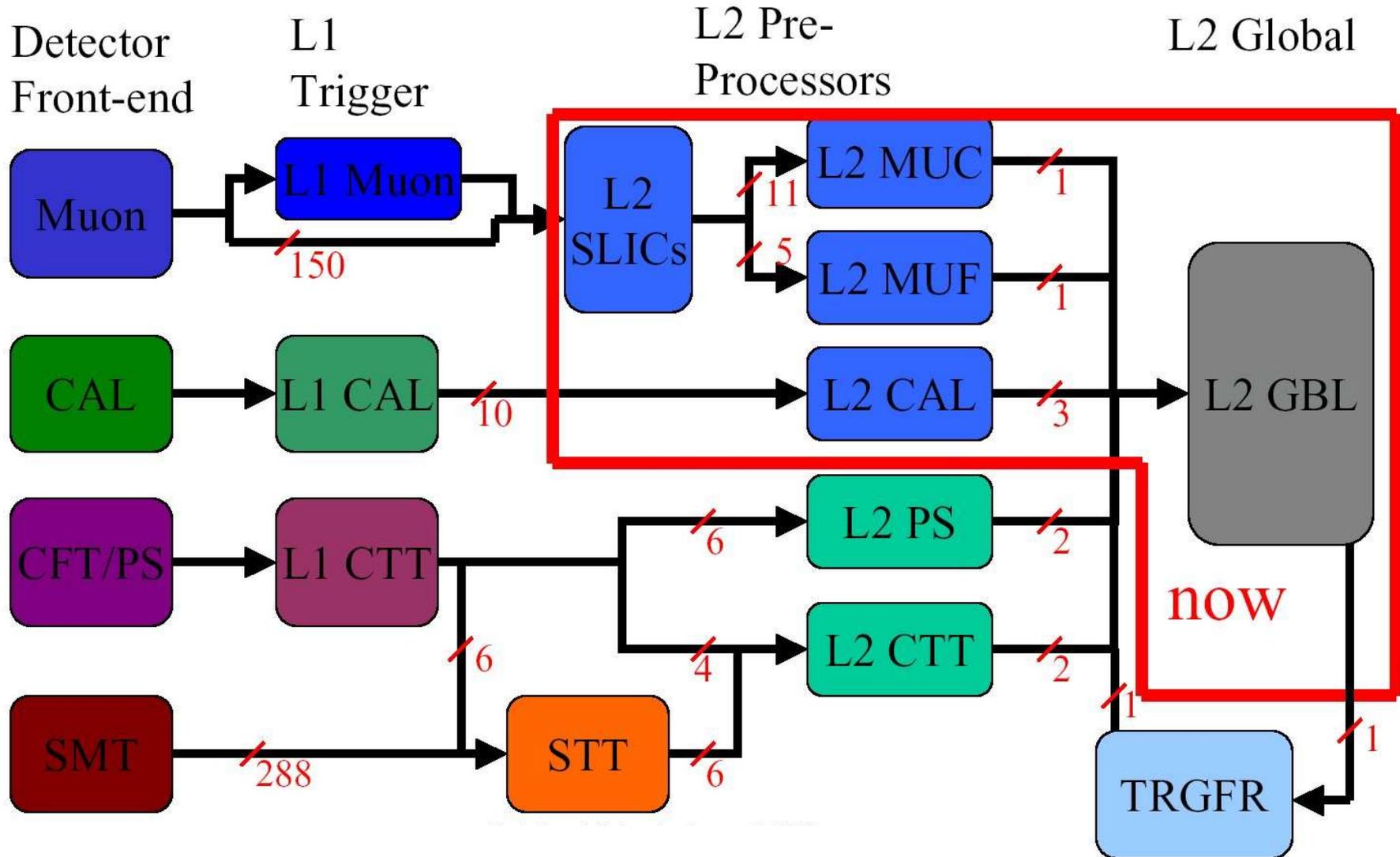
Miroslav Kopál
University of Oklahoma

DØ Operation meeting - November 2, 2004

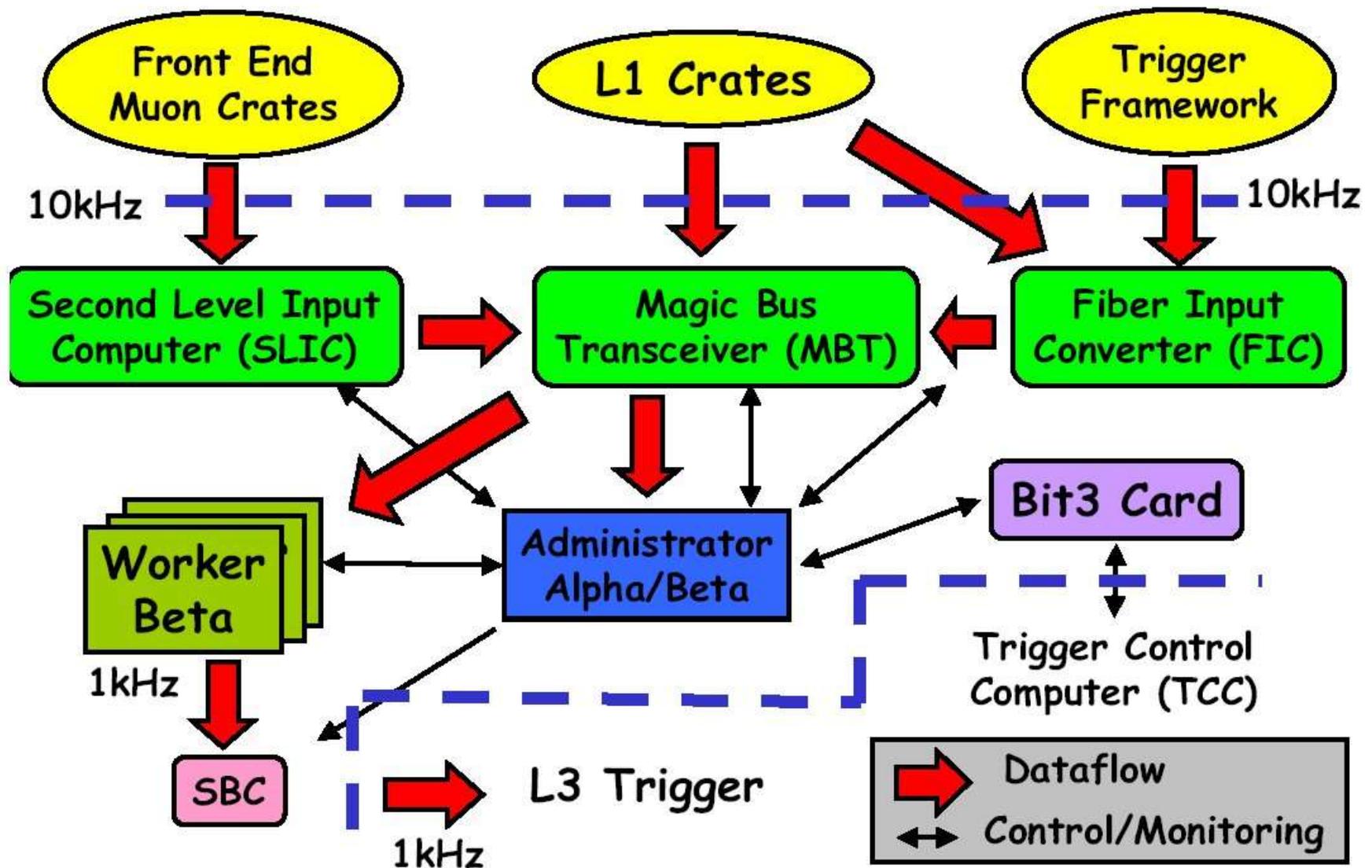
Outline

- L2 Trigger Data Flow
- L2 Controls
 - ◆ L2 Trigger Control Computer
- L2 Monitoring
 - ◆ L2 Data Flow GUI
- L2 Operations
 - ◆ what you HAVE to know about L2
 - ◆ common Problems and Solutions
 - ◆ DAQ shifter vs. L2 expert
 - ◆ resources - where to find information about L2

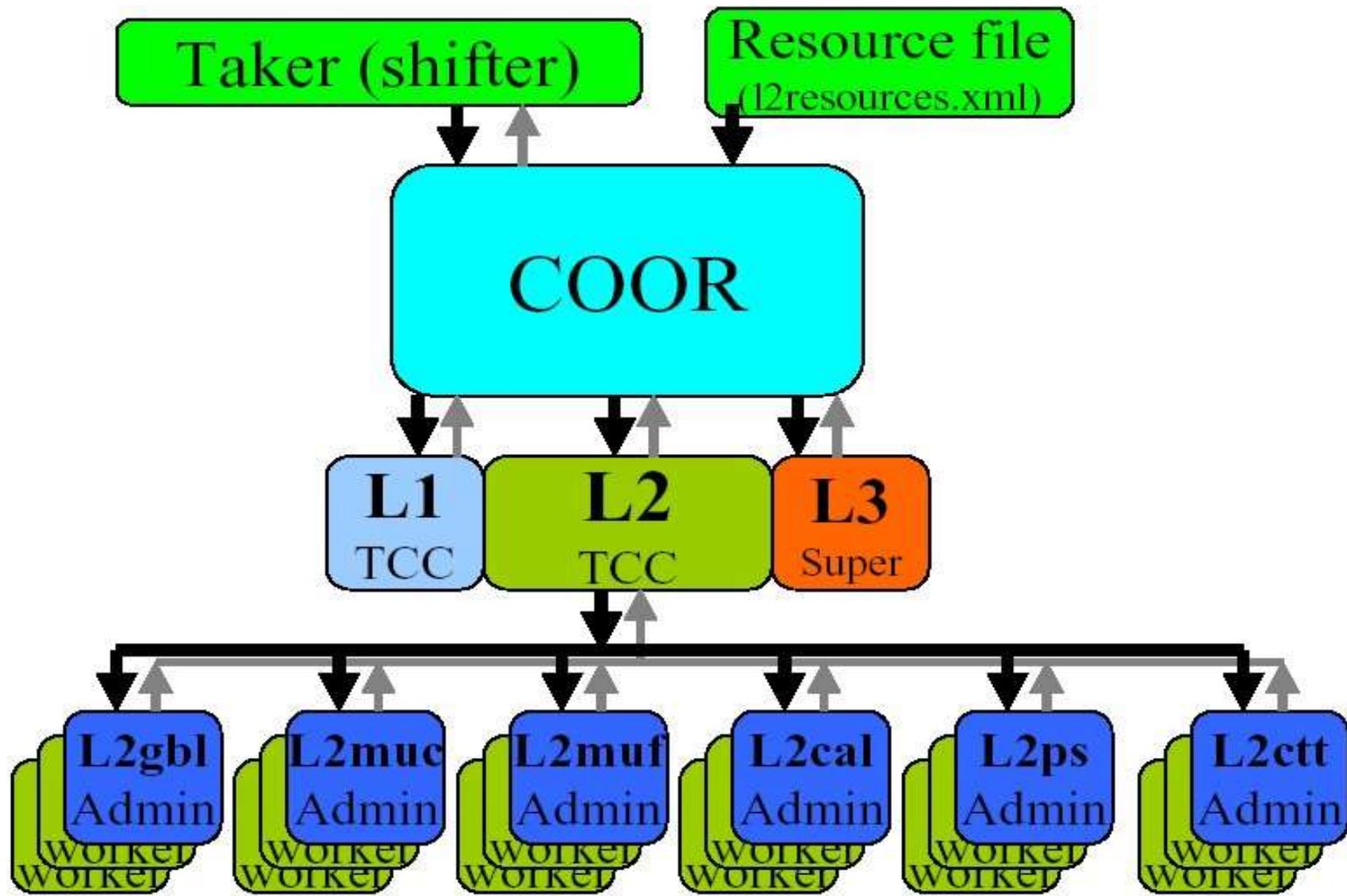
L2 Trigger Data Flow - trigger framework



L2 Trigger Data Flow - single L2 crate



L2 Trigger Data Flow - configuration



L2 Controls - TCC2

- **Level 2 Trigger Control Computer (L2TCC or TCC2)
 - runs L2 Relay Software (or L2RS)**
- **interface to COOR and monitor servers**
- **configures and controls all L2 crates**
 - ◆ static configuration files are loaded when COOR is initialized
 - ◆ forwards and coordinates COOR messages to all L2 crates when run is being started or stopped

L2 Controls - L2RS

- L2RS is equivalent to Trics in L1TCC
- allows access (for L2 experts only) to L2 crates
 - ◆ send messages to L2 administrator (configure, exit/enter event loop, status, etc. ...)
- provides a log window with recent activity
 - ◆ monitoring information: I\$ (eg. "<done>")
 - ◆ messages from COOR: M\$
 - ◆ error messages: E\$ (eg. "failure communication with admin")

Useful, when debugging L2 problems.
Look at it, but you DO NOT touch it!

L2 Controls - L2RS

The screenshot displays the L2RS V3.1 software interface. On the left, a control panel titled "L2 Fake COOR Messages" includes a "Crate Interface" label with a green arrow pointing to the "Send a Fake COOR Message to L2 TCC" section. This section contains several radio buttons for actions like "Initialize", "Start Run", "Stop Run", "Enter Evt Loop", "Exit Evt Loop", "Collect Status", "Send CmdBuf", "Dump Cmd Buf", "Dump Status", "L2 Script", "Configure_Crate", "Exit Program", and "Monit Level". Below these are radio buttons for selecting a component: "L2 Global", "L2 Cal", "L2 Mu Cen", "L2 Mu Fwd", "L2 CTT", and "L2 PS". A "Send" button is present. At the bottom of the control panel, there is a "Send Message Command File" section with a text input field containing "\Trics", "Find...", "Execute", and "Syntax Rule" buttons, along with checkboxes for "Show Progress" and "Show Details".

On the right, a log window titled "L2RS V3.1_Rev A" shows a stream of messages. A green arrow points from the "Send" button in the control panel to the log window. The log contains numerous entries such as "Monitor Data Length = 0x000012dc for L2MuCen" and "Err Msg Data Length = 0x00000005 for L2Global". At the bottom of the log, several "Monit Flag" messages are visible: "Monit Flag for L2Cal Crate on Adapter #3= Admin Writing->ICC Waiting", "Monit Flag for L2PS Crate on Adapter #4= Admin Writing->ICC Waiting", and "Monit Flag for L2CTT Crate on Adapter #5= Admin Writing->ICC Waiting".

At the bottom of the screenshot, a yellow banner contains the text "L2 L2 L2 L2 L2 L2 L2 L2 L2 L2" in green. The Windows taskbar at the very bottom shows the Start button, several application icons, and the active window "L2RS V3.1_Rev A". The system tray on the right shows "L2 Relay Software", the file path "D:\Trics\DO_Config", and the time "12:59 AM".

L2 Controls - L2RS

```
m$ INPUT_DIR10 = 4, # ID 0x167
I$ Process Msg Command : <L2 Script for L2MuFwd Crate>
I$ <Done>
M$ Receive Msg # 2002 : 00000000000107673 l2script L2CAL ADMIN IPMANAGER <
M$ ALPHACH0 = 0, # none
M$ ALPHACH1 = 1, # L1CAL 1
M$ ALPHACH2 = 1, # L1CAL 2
M$ ALPHACH3 = 1, # L1CAL 3
M$ ALPHACH4 = 1, # L1CAL 4
M$ ALPHACH5 = 1, # L1CAL 5
M$ ALPHACH6 = 1, # L1CAL 6
M$ ALPHACH7 = 1, # L1CAL 7
M$ ALPHACH8 = 0, # L1CAL 8
M$ ALPHACH9 = 0, # L1CAL 9
M$ ALPHACH10 = 0, # none
M$ ALPHACH11 = 0, # none
M$ ALPHACH12 = 0, # none
M$ L2CAL ADMIN PILOIMBT <
M$ UMESLOT = 20, # UME slot number of the card
M$ CHAN0 = -1, # none
M$ CHAN1 = 2, # L1CAL 1
M$ CHAN2 = 3, # L1CAL 2
M$ CHAN3 = 4, # L1CAL 3
M$ CHAN4 = 5, # L1CAL 4
M$ CHAN5 = 6, # L1CAL 5
M$ CHAN6 = 7, # L1CAL 6
M$ CHAN7 = 0, # SCL
M$ DISP_CHAN = 7, # Channel to display on the MBT front panel
M$ TEST_SCL = 0, # Disable testing mode
M$ CYCLE_BUFFERS = 1, # cycle the b7
I$ Process Msg Command : <L2 Script for L2Cal Crate>
I$ <Done>
M$ Receive Msg # 2003 : 00000000000107675 start_run 173220 4
I$ Process Msg Command : <Start Run #173220 for Spec Trig(s) # 4>
I$ Process Msg Command : <Start Run for L2Cal Crate>
I$ Admin has noticed the new commands for L2MuFwd Crate: TCC Waiting
I$ Admin Replied Ok for L2MuFwd Crate
I$ <Done>
I$ Process Msg Command : <Start Run for L2Cal Crate>
I$ Err Msg Data Length =0x0000016d for L2MuFwd
I$ Monitor Data Length =0x0000103d for L2MuFwd
I$ Sending TCC->L2Cal Admin Command <EXIT_EUENTLOOP>
I$ Waking Up L2Cal Admin
I$ Waiting for L2Cal Admin Reply
I$ Admin Replied Ok for L2Cal Crate
I$ Relaying COOR Commands to L2Cal Buffer - 1 Commands, 1781 Bytes
I$ Waking Up L2Cal Admin
I$ Waiting for L2Cal Admin Reply
I$ Admin has noticed the new commands for L2Cal Crate: ICC Waiting
I$ Admin Replied Ok for L2Cal Crate
I$ Clearing L2Cal Crate Command Buffer
I$ Sending TCC->L2Cal Admin Command <ENTER_EUENTLOOP>
I$ Waking Up L2Cal Admin
I$ Waiting for L2Cal Admin Reply
I$ Err Msg Data Length =0x00000005 for L2Cal
I$ Monitor Data Length =0x00000dd5 for L2Cal
I$ Admin has noticed the new commands for L2Cal Crate: ICC Waiting
I$ Admin Replied Ok for L2Cal Crate
I$ <Done>
I$ <Done>
I$ Err Msg Data Length =0x00000005 for L2Global
I$ Err Msg Data Length =0x00000221 for L2MuCen
```

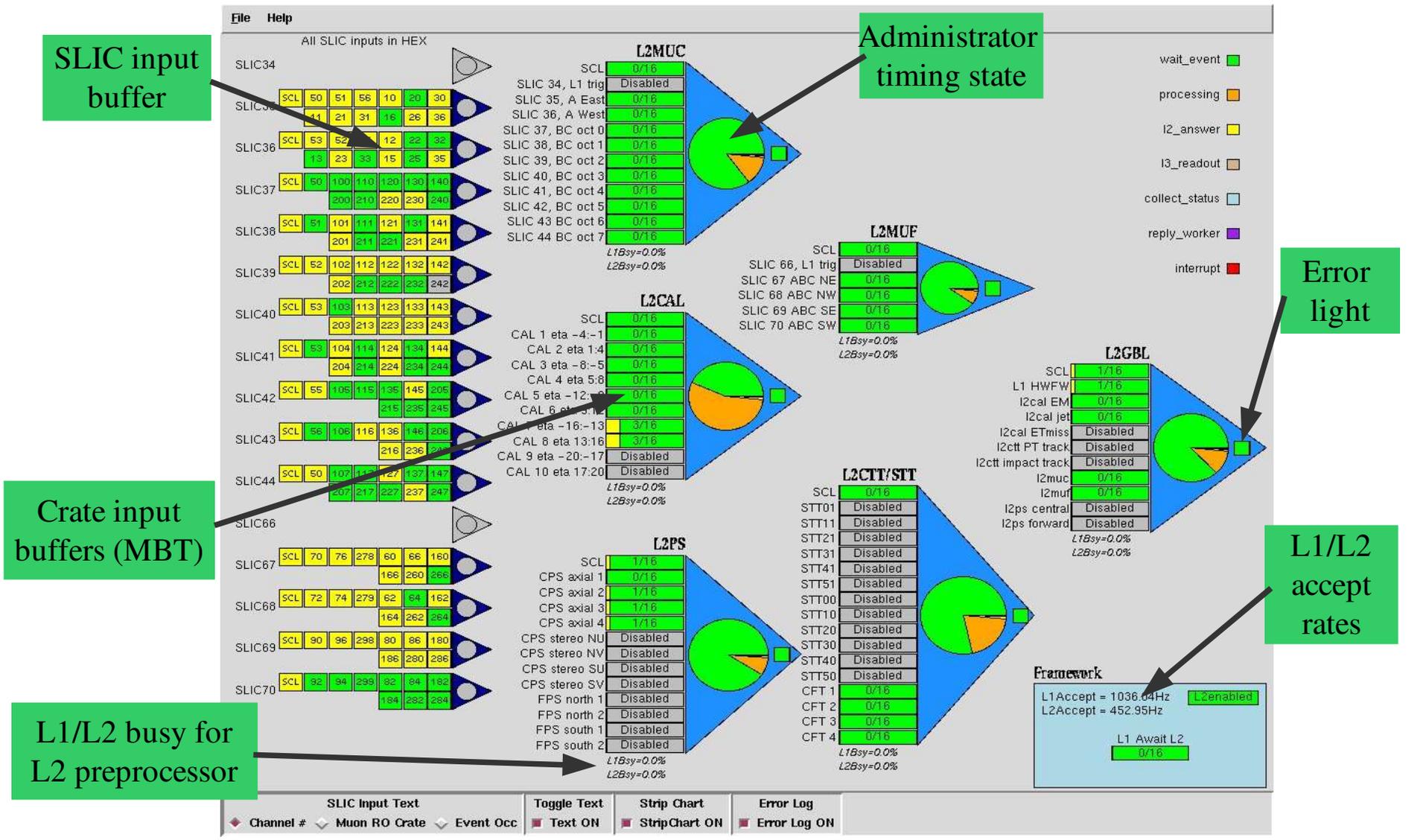
COOR Download

Good Start Run

```
I$ Sending TCC->L2MuCen Admin Command <COLLECT_STATUS>
I$ Waking Up L2MuCen Admin
I$ Waiting for L2MuCen Admin Reply
E$ Timeout waiting for Admin to Wake Up for L2MuCen Crate: TCC Give Up
I$ Sending TCC->L2Cal Admin Command <COLLECT_STATUS>
I$ Waking Up L2Cal Admin
I$ Waiting for L2Cal Admin Reply
E$ Timeout waiting for Admin to Wake Up for L2Cal Crate: TCC Give Up
I$ Sending TCC->L2MuFwd Admin Command <COLLECT_STATUS>
I$ Waking Up L2MuFwd Admin
I$ Waiting for L2MuFwd Admin Reply
E$ Timeout waiting for Admin to Wake Up for L2MuFwd Crate: TCC Give Up
I$ Sending TCC->L2Global Admin Command <COLLECT_STATUS>
I$ Waking Up L2Global Admin
I$ Waiting for L2Global Admin Reply
E$ Timeout waiting for Admin to Wake Up for L2Global Crate: TCC Give Up
I$ Sending TCC->L2MuCen Admin Command <COLLECT_STATUS>
I$ Waking Up L2MuCen Admin
```

Error: Beta is not responding to L2TCC

L2 Monitoring



L2 Monitoring

- **Level 2 data flow GUI (or l2df)**

- ◆ information flow ⇒ from **left** to **right**

- **MDT/PDT/scintillator channels = SLICs' inputs**

- **rectangles (all over the GUI) = inputs to L2**

pre-processors

- muon crates (x30-3b) → L2 SLICs → L2MUC (x21), L2MUF (x22)
- L1CAL (x10) → L2CAL (x23) no inputs from CAL crates (x40-4c)
- L1CTT → L2PS (x24) no FPS at the moment
- L1CTT + STT → L2CTT (x25)
crate x13 is only L1CTT monitoring crate, it does not provide any inputs
- all L2 crates + TFW → L2GBL (x20)

L2 Monitoring

- **big triangles = L2 pre-processors (crate's administrator)**
- **pie charts = timing information**
 - ◆ await/idle an event, processing, L2 answer, L3 readout, collect status, worker replay, interrupt
- **framework information**
 - ◆ L1 and L2 rates, L1 await L2
- **l2df updates - every 5 seconds**
 - ◆ monitoring information comes from L3 monitor server DAQMON scraper (`l3ms_util_clients` server)

L2 Monitoring

GREEN color = idle/empty

- empty input buffer
- SLIC/Beta in idle state
- TFW is not waiting for L2 global

RED color = error

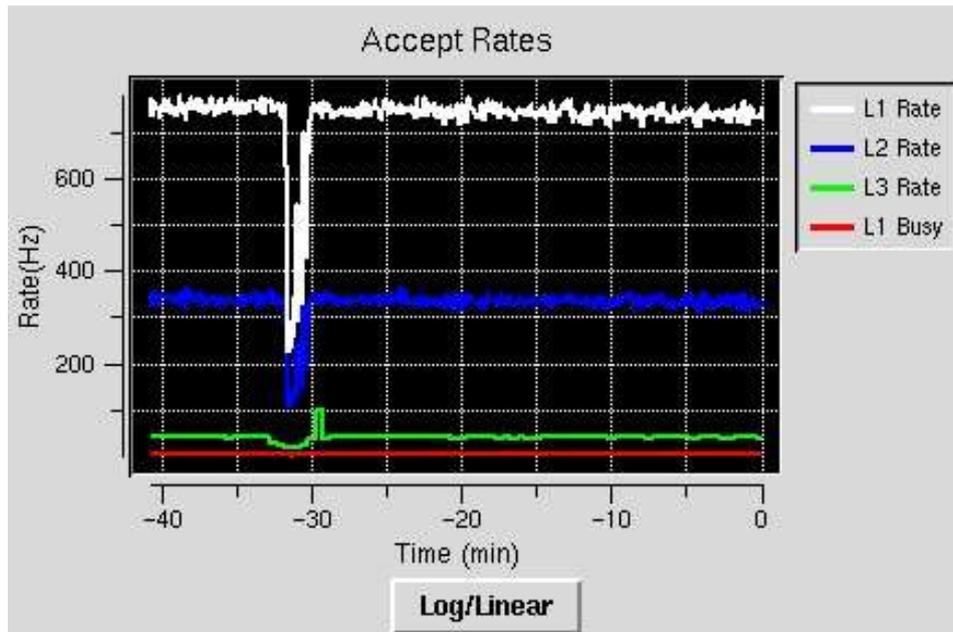
- administrator errors (red box)
- input error

ORANGE or YELLOW = working

- processing event (orange)
- input buffers filled (yellow)

GRAY color = disable

L2 Monitoring



- **stripmon** - up to 70 min of L1, L2, L3 and FEB rates history
- available as stand alone plot (but usually, it is a part of **l2df**)
 - global L1, L2 and L3 rates
 - specific triggers rates/FEB
 - geometric-sector rates and busies

```
Copy Save Find Clear Save and Clear Quit message received 23 m
Sat Nov 29 12:30:55 2003 Missing Input: SLIC 39, BC oct 2 SLIC Index 5, Channel Index13,
ID x242, Readout Crate x34 *FIXED*
Sat Nov 29 12:34:02 2003 Missing Input: L2MVC, MBT 0, Channel 6, Alpha Index 7
Sat Nov 29 12:34:02 2003 Missing Input: SLIC 39, BC oct 2 SLIC Index 5, Channel Index13,
ID x242, Readout Crate x34
Sat Nov 29 12:40:53 2003 Missing Input: L2MVC, MBT 0, Channel 6, Alpha Index 7 *FIXED*
Sat Nov 29 12:40:54 2003 Missing Input: SLIC 39, BC oct 2 SLIC Index 5, Channel Index13,
ID x242, Readout Crate x34 *FIXED*
Sat Nov 29 12:41:05 2003 Missing Input: L2MVC, MBT 0, Channel 6, Alpha Index 7
Sat Nov 29 12:41:05 2003 Missing Input: SLIC 39, BC oct 2 SLIC Index 5, Channel Index13,
ID x242, Readout Crate x34
Sat Nov 29 12:46:45 2003 Missing Input: L2MVC, MBT 0, Channel 6, Alpha Index 7 *FIXED*
Sat Nov 29 12:46:45 2003 Missing Input: SLIC 39, BC oct 2 SLIC Index 5, Channel Index13,
ID x242, Readout crate x34 *FIXED*
```

- **L2 message box**
 - information about missing inputs
 - time to the last missing input

L2 Operations - COOR vs. L2

- When DAQ shifter downloads trigger, COOR:
 - configures L1 framework
 - sends L2 configuration to L2TCC
 - configures L3 supervisor
- When DAQ shifter starts run, COOR
 - sends start run to L1, L2 and L3
 - L2TCC sends configuration (enables/disabled inputs = MBT channels) to L2 crate administrators and administrators then configure L2 crate pre-processors = workers
- TWF issues SCL-init

L2 Operations - L2 crates

- What does DAQ shifter must check before starting a physics run?
 - check the configuration in DAQ taker - all L2 crates, x20, x21, x22, x23, x24 and x25, must be included in the readout at all times
- When can you exclude a level 2 crate?
 1. CFT calibration
 - exclude x25 before the calibration
 - include x25 back in the readout when the calibration is finished
 2. when L2 expert(s) said so ...

L2 Operations

- How can DAQ shifter recognize a level 2 problem?

1. listen to `daqAI`
2. check `uMon` and `daqdialog` for red L2 crates
3. and make sure no other crates are red
 - ↳ DAQ monitoring tools←
4. check for presence of minor/major **level 2** alarms
5. check `l2df` (eg. for red squares)
6. check for red messages in `TCC2`
 - ↳ L2 monitoring tools←

L2 Operations

- What does DAQ shifter do when there is a level 2 problem?

1. issue an sclinit

- if the first one does not fix it, try one more time

2. only after 2-3 tries, it's time to apply more powerful tool - **medium hammer**

- "l2reset <L2_crate_name>"

- <L2_crate_name> = l2gbl, l2muc, l2muf, l2cal, l2ps and l2ctt

- the 1st medium hammer should fix the L2 problem, if not, try one more time - perhaps it's time to page the L2 expert.

3. if the medium hammer did not fix the problem, page the L2 expert

L2 Operations - problems and solutions

- First fix crates providing inputs to L2
- Most common troubles are:
(not necessary a level 2 problem)
 - missing inputs to L2 ... l2df, uMon
 - corrupted inputs to L2 ... masked by other problems
→ you need an assistance
 - L2 crate problems - board(s) failure
→ you must page the L2 expert
 - L2 rack problems - often "only" a rack power trip
→ you must page the L2 expert

L2 Operations

The image displays a software interface for L2 operations. On the left is a grid of SLIC channels, and on the right is a detailed view of a selected channel. A red oval highlights a specific channel in both views.

SLIC	Channel Index	Channel ID	Readout Crate
SCL	x50	x51	x56
x30	x11	x21	x31
SCL	x53	x52	x55
x32	x13	x23	x33
SCL	x50	x100	x110
x140	x200	x210	x240
SCL	x51	x101	x111
x141	x201	x211	x241
SCL	x52	x102	x112
x142	x202	x212	x242
SCL	x53	x103	x113
x143	x203	x213	x243
SCL	x53	x104	x114
x144	x204	x214	x244
SCL	x55	x105	x115
x205	x215	x235	x245
SCL	x56	x106	x116
x206	x216	x236	x246
SCL	x50	x107	x117
x147	x207	x217	x247
SCL		x70	x76
x60	x66	x160	x266
SCL		x72	x74
x62	x64	x162	x264
SCL		x90	x96
x80	x86	x180	x286
SCL		x92	x94
x82	x84	x182	x284

The right panel shows a detailed view of the selected channel (SLIC 37, BC oct 0). The status of various components is shown in a list:

- SCL: 16
- SLIC 34, L1 trig: Disabled
- SLIC 35, A East: 16
- SLIC 36, A West: 16
- SLIC 37, BC oct 0: 16
- SLIC 38, BC oct 1: 0
- SLIC 39, BC oct 2: 16
- SLIC 40, BC oct 3: 16
- SLIC 41, BC oct 4: 16
- SLIC 42, BC oct 5: 16
- SLIC 43, BC oct 6: 16
- SLIC 44, BC oct 7: 16

The 'Error Messages' window shows the following log entries:

```

10, Channel Index2, Channel ID x50, Readout Crate x3b
Thu Jul 31 16:27:58 2003 Missing Input: L2MUC, MBT 0, Channel 4, Alpha Index 5 *FIXED*
Thu Jul 31 16:27:58 2003 Missing Input: SLIC 37, BC oct 0 SLIC Index 3, Channel Index2, Channel ID x50, Readout Crate x3b *FIXED*
Thu Jul 31 16:28:04 2003 Missing Input: L2MUC, MBT 1, Channel 4, Alpha Index 12 *FIXED*
Thu Jul 31 16:28:04 2003 Missing Input: SLIC 44 BC oct 7 SLIC Index 10, Channel Index2, Channel ID x50, Readout Crate x3b *FIXED*
    
```

L2 Operations - problems and solutions

Missing inputs to L2

- detected by daqAI
- it very often happens to *l2muc* and *l2muf*, less often to *l2ctt* and *l2ps*, rarely to *l2cal*
- **Diagnostics:**
 - *l2df* shows all input buffers **yellow**, except one
 - this buffer is **green** (no events = missing events)
 - check the *l2df* GUI's message box - it tells you which input channel in which FE crate is involved
- **Actions:**
 - *l2muc* or *l2muf* - contact MUON shifter - muon GUI monitors only L3 muon data path, thus shifter might not see any problems - no L2 muon data path
 - *l2ps* or *l2ctt* - contact CFT or SMT shifter

L2 Operations - problems and solutions

Connection problems COOR ↔ L2

➤ Diagnostics:

- DAQ taker shows read messages
- coormon might also show red conn:l2dnl
- and, it's also possible that tcc2's message window contains some error messages

➤ Action:

- it often happens after medium hammer on l2muc/l2muf
 - just start the run again
- after medium hammer on l2gbl
 - re-download the trigger
 - start the run again

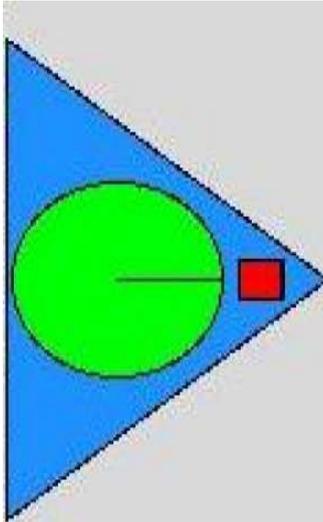
L2 Operations - problems and solutions

L2 crate is 100% FEB

- detected by daqAI
- it may or may not require L2 expert's attention
- **Diagnostic:**
 - this level 2 crate is **red** in daqdialog and/or uMon (no other crate should be lit red)
 - red square next to this crate in l2df (instead of green)
- **Action:**
 1. **small hammer** = sclinit
 2. **medium hammer** = "l2reset <L2_crate_name>"

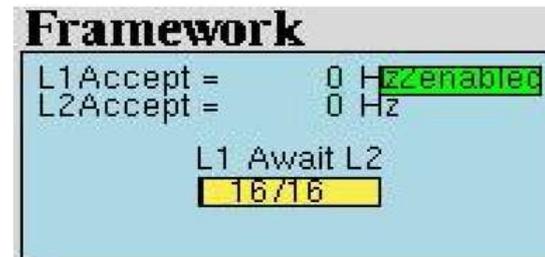
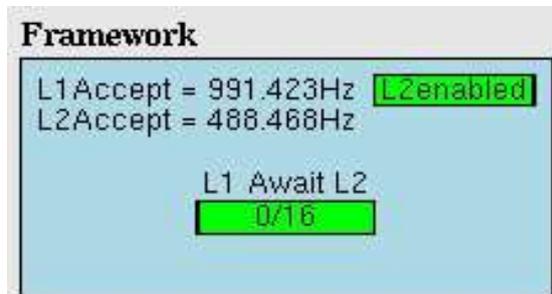
ALL RUNS MUST BE STOPPED!
... having a non-L2 crate 100% L2 FEB is not L2 problem

L2 Operations



- **sync errors** - data corruption - recognized by daqAI
- **configuration problems** - in this case, stop the run and re-download the trigger

- data flow stopped but there is no evidence found, why. Check **l2df** - l2gbl might be in troubles.



L2 Operations

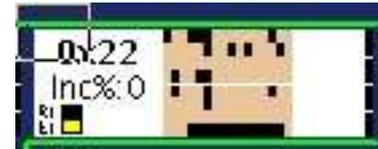
L1 Busy Percentage				L2 Busy Percentage			
0x9				0x9			
0x10	1.4%	0x11	0x12 100%	0x10	0x11	0x12 100%	0x13
0x14		0x16	0x17	0x14	0x16	0x17	0x18
0x19		0x1f		0x19	0x1f		
0x20		0x21	0x22	0x20	0x21	0x22	0x23
0x24		0x25		0x24	0x25		
0x30		0x31	0x32	0x30	0x31	0x32	0x33
0x34		0x35	0x36	0x34	0x35	0x36	0x37
0x38		0x39	0x3a	0x38	0x39	0x3a	0x3b
0x40		0x41	0x42	0x40	0x41	0x42	0x43
0x44		0x45	0x46	0x44	0x45	0x46	0x47
0x48		0x49	0x4a	0x48	0x49	0x4a	0x4b
0x4c				0x4c			
0x50		0x51	0x52	0x50	0x51	0x52	0x53
0x60	3.5%	0x61 3.6%	0x62 4.5%	0x60	0x61	0x62 4.6%	0x63
0x64	3.9%	0x65 3.9%	0x66 3.5%	0x64	0x65 1.5%	0x66	0x67
0x68	4.5%	0x69 4.1%	0x6a 3.9%	0x68 6.0%	0x69 2.0%	0x6a	0x6b 1.2%
0x70		0x71	0x72	0x70	0x71	0x72	0x73
0x74		0x75	0x79	0x74	0x75	0x79	

L2 Operations - problems and solutions

SBC problems in L2 crates

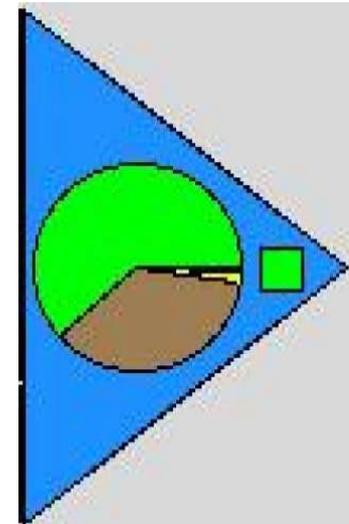
➤ Diagnostics:

- check `uMon` - no farm nodes for L2 crate(s)
- check `l2df` - brown pie chart - problem with L3 SBC readout



➤ Action:

- If the rest of system behave normally, it is likely a problem with SBC. You probably need assistance from the L2 (or L3) expert.



L2df - downloaded zero_bias trigger list

File Help

All SLIC inputs in HEX

SLIC	SCL	Hex Values	Trigger Name	Status
SLIC34			SCL	0/16
			SLIC 34, L1 trig	Disabled
SLIC35	50	51 58 10 20 30	SLIC 35, A East	0/16
	14	21 31 16 28 38	SLIC 36, A West	0/16
SLIC36	53	52 55 12 22 32	SLIC 37, BC oct 0	0/16
	13	23 33 15 25 35	SLIC 38, BC oct 1	0/16
SLIC37	50	100 110 120 130 140	SLIC 39, BC oct 2	0/16
		200 210 220 230 240	SLIC 40, BC oct 3	0/16
SLIC38	51	101 111 121 131 141	SLIC 41, BC oct 4	0/16
		201 211 221 231 241	SLIC 42, BC oct 5	0/16
SLIC39	52	102 112 122 132 142	SLIC 43 BC oct 6	0/16
		202 212 222 232 242	SLIC 44 BC oct 7	0/16
SLIC40	53	103 113 123 133 143	L1Bsy=0.0%	0/16
		203 213 223 233 243	L2Bsy=0.0%	0/16
SLIC41	53	104 114 124 134 144	CAL 1 eta -4:-1	0/16
		204 214 224 234 244	CAL 2 eta 1:4	0/16
SLIC42	55	105 115 135 145 205	CAL 3 eta -8:-5	0/16
		215 235 245	CAL 4 eta 5:8	0/16
SLIC43	56	106 116 136 146 206	CAL 5 eta -12:-9	0/16
		216 236 246	CAL 6 eta 9:12	0/16
SLIC44	50	107 117 127 137 147	CAL 7 eta -16:-13	0/16
		207 217 227 237 247	CAL 8 eta 13:16	0/16
SLIC66			CAL 9 eta -20:-17	Disabled
			CAL 10 eta 17:20	Disabled
SLIC67	70	78 278 60 68 160	L1Bsy=0.0%	0/16
		156 260 268	L2Bsy=0.0%	0/16
SLIC68	72	74 279 62 64 162	CPS axial 1	0/16
		164 262 264	CPS axial 2	0/16
SLIC69	90	96 298 80 88 180	CPS axial 3	0/16
		186 290 296	CPS axial 4	0/16
SLIC70	92	94 299 82 84 182	CPS stereo NU	0/16
		184 282 284	CPS stereo NV	0/16
			CPS stereo SU	0/16
			CPS stereo SV	0/16
			FPS north 1	Disabled
			FPS north 2	Disabled
			FPS south 1	Disabled
			FPS south 2	Disabled
			L1Bsy=0.0%	0/16
			L2Bsy=0.0%	0/16

SLIC	SCL	Hex Values	Trigger Name	Status
SLIC66			SCL	0/16
			SLIC 66, L1 trig	Disabled
SLIC67			SLIC 67 ABC NE	0/16
SLIC68			SLIC 68 ABC NW	0/16
SLIC69			SLIC 69 ABC SE	0/16
SLIC70			SLIC 70 ABC SW	0/16
			L1Bsy=0.0%	0/16
			L2Bsy=0.0%	0/16

SLIC	SCL	Hex Values	Trigger Name	Status
SLIC67	70	78 278 60 68 160	SCL	0/16
		156 260 268	CPS axial 1	0/16
SLIC68	72	74 279 62 64 162	CPS axial 2	0/16
		164 262 264	CPS axial 3	0/16
SLIC69	90	96 298 80 88 180	CPS axial 4	0/16
		186 290 296	CPS stereo NU	0/16
SLIC70	92	94 299 82 84 182	CPS stereo NV	0/16
		184 282 284	CPS stereo SU	0/16
			CPS stereo SV	0/16
			FPS north 1	Disabled
			FPS north 2	Disabled
			FPS south 1	Disabled
			FPS south 2	Disabled
			L1Bsy=0.0%	0/16
			L2Bsy=0.0%	0/16

SLIC	SCL	Hex Values	Trigger Name	Status
SLIC67	70	78 278 60 68 160	SCL	0/16
		156 260 268	STT00	0/16
SLIC68	72	74 279 62 64 162	STT10	0/16
		164 262 264	STT20	0/16
SLIC69	90	96 298 80 88 180	STT30	0/16
		186 290 296	STT40	0/16
SLIC70	92	94 299 82 84 182	STT50	0/16
		184 282 284	STT01	0/16
			STT11	0/16
			STT21	0/16
			STT31	0/16
			STT41	0/16
			STT51	0/16
			CFT 1	0/16
			CFT 2	0/16
			CFT 3	0/16
			CFT 4	0/16
			L1Bsy=0.0%	0/16
			L2Bsy=0.0%	0/16

SLIC	SCL	Hex Values	Trigger Name	Status
SLIC67	70	78 278 60 68 160	SCL	0/16
		156 260 268	L1 HWFW	0/16
SLIC68	72	74 279 62 64 162	I2cal EM	Disabled
		164 262 264	I2cal jet	Disabled
SLIC69	90	96 298 80 88 180	I2cal ETmiss	Disabled
		186 290 296	I2ctt STT PT	Disabled
SLIC70	92	94 299 82 84 182	I2ctt STT IP	Disabled
		184 282 284	I2muc	Disabled
			I2muf	Disabled
			I2ps central	Disabled
			I2ps forward	Disabled
			I2ctt CTT track	Disabled
			L1Bsy=0.0%	0/16
			L2Bsy=0.0%	0/16

SLIC	SCL	Hex Values	Trigger Name	Status
SLIC67	70	78 278 60 68 160	SCL	0/16
		156 260 268	L1 Accept = 0Hz	L2enabled
SLIC68	72	74 279 62 64 162	L1 Await L2	0/16
SLIC69	90	96 298 80 88 180	L2 Accept = 0Hz	0/16
SLIC70	92	94 299 82 84 182		

wait_event processing I2_answer I3_readout collect_status reply_worker interrupt

SLIC Input Text Toggle Text Strip Chart Error Log

Channel # Muon RO Crate Event Occ Text ON StripChart ON Error Log ON

L2df - loading a trigger

File Help

All SLIC inputs in HEX

SLIC34	SCL	50	51	56	10	20	30
		11	21	31	16	26	36
SLIC35	SCL	53	52	55	12	22	32
		13	23	33	15	25	35
SLIC36	SCL	50	100	110	120	130	140
		200	210	220	230	240	
SLIC37	SCL	51	101	111	121	131	141
		201	211	221	231	241	
SLIC38	SCL	52	102	112	122	132	142
		202	212	222	232	242	
SLIC39	SCL	53	103	113	123	133	143
		203	213	223	233	243	
SLIC40	SCL	53	104	114	124	134	144
		204	214	224	234	244	
SLIC41	SCL	55	105	115	135	145	205
					215	235	245
SLIC42	SCL	55	106	116	136	146	206
					216	236	246
SLIC43	SCL	50	107	117	127	137	147
		207	217	227	237	247	
SLIC44	SCL	70	78	278	60	68	160
				158	260	268	
SLIC66	SCL	72	74	278	62	64	162
				164	262	264	
SLIC67	SCL	90	96	298	80	86	180
				186	280	286	
SLIC68	SCL	92	94	298	82	84	182
				184	282	284	
SLIC69	SCL	92	94	298	82	84	182
				184	282	284	
SLIC70	SCL	92	94	298	82	84	182
				184	282	284	

L2MUC

- SCL Disabled
- SLIC 34, L1 trig Disabled
- SLIC 35, A East Disabled
- SLIC 36, A West Disabled
- SLIC 37, BC oct 0 Disabled
- SLIC 38, BC oct 1 Disabled
- SLIC 39, BC oct 2 Disabled
- SLIC 40, BC oct 3 Disabled
- SLIC 41, BC oct 4 Disabled
- SLIC 42, BC oct 5 Disabled
- SLIC 43 BC oct 6 Disabled
- SLIC 44 BC oct 7 Disabled

L1Bsy=0.00%
L2Bsy=0.00%

L2CAL

- SCL Disabled
- CAL 1 eta -4:-1 Disabled
- CAL 2 eta 1:4 Disabled
- CAL 3 eta -8:-5 Disabled
- CAL 4 eta 5:8 Disabled
- CAL 5 eta -12:-9 Disabled
- CAL 6 eta 9:12 Disabled
- CAL 7 eta -16:-13 Disabled
- CAL 8 eta 13:16 Disabled
- CAL 9 eta -20:-17 Disabled
- CAL 10 eta 17:20 Disabled

L1Bsy=0.00%
L2Bsy=0.00%

L2PS

- SCL Disabled
- CPS axial 1 Disabled
- CPS axial 2 Disabled
- CPS axial 3 Disabled
- CPS axial 4 Disabled
- CPS stereo NU Disabled
- CPS stereo NV Disabled
- CPS stereo SU Disabled
- CPS stereo SV Disabled
- FPS north 1 Disabled
- FPS north 2 Disabled
- FPS south 1 Disabled
- FPS south 2 Disabled

L1Bsy=0.00%
L2Bsy=0.00%

L2MUF

- SCL Disabled
- SLIC 66, L1 trig Disabled
- SLIC 67 ABC NE Disabled
- SLIC 68 ABC NW Disabled
- SLIC 69 ABC SE Disabled
- SLIC 70 ABC SW Disabled

L1Bsy=0.00%
L2Bsy=0.00%

L2GBL

- SCL Disabled
- L1 HWFW Disabled
- I2cal EM Disabled
- I2cal jet Disabled
- I2cal ETmiss Disabled
- I2ctt STT PT Disabled
- I2ctt STT IP Disabled
- I2muc Disabled
- I2muf Disabled
- I2ps central Disabled
- I2ps forward Disabled
- I2ctt CTT track Disabled

L1Bsy=0.00%
L2Bsy=0.00%

L2CTT/STT

- SCL Disabled
- STT00 Disabled
- STT10 Disabled
- STT20 Disabled
- STT30 Disabled
- STT40 Disabled
- STT50 Disabled
- STT01 Disabled
- STT11 Disabled
- STT21 Disabled
- STT31 Disabled
- STT41 Disabled
- STT51 Disabled
- CFT 1 Disabled
- CFT 2 Disabled
- CFT 3 Disabled
- CFT 4 Disabled

L1Bsy=0.00%
L2Bsy=0.00%

- wait_event ■
- processing ■
- I2_answer ■
- I3_readout ■
- collect_status ■
- reply_worker ■
- interrupt ■

Framework

L1 Accept = 0Hz ■ L2enabled

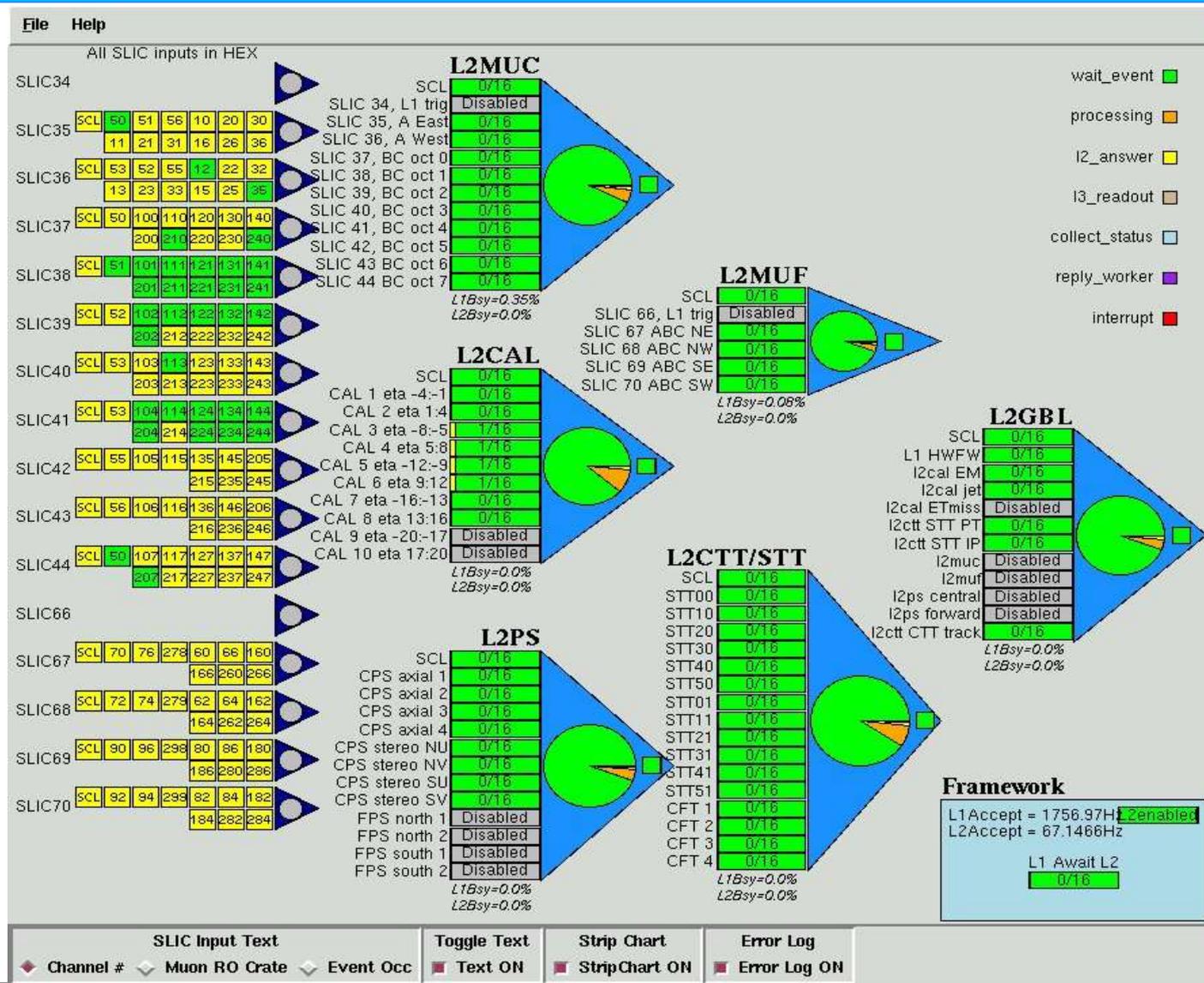
L2 Accept = 0Hz

L1 Await L2 ■ 0/16

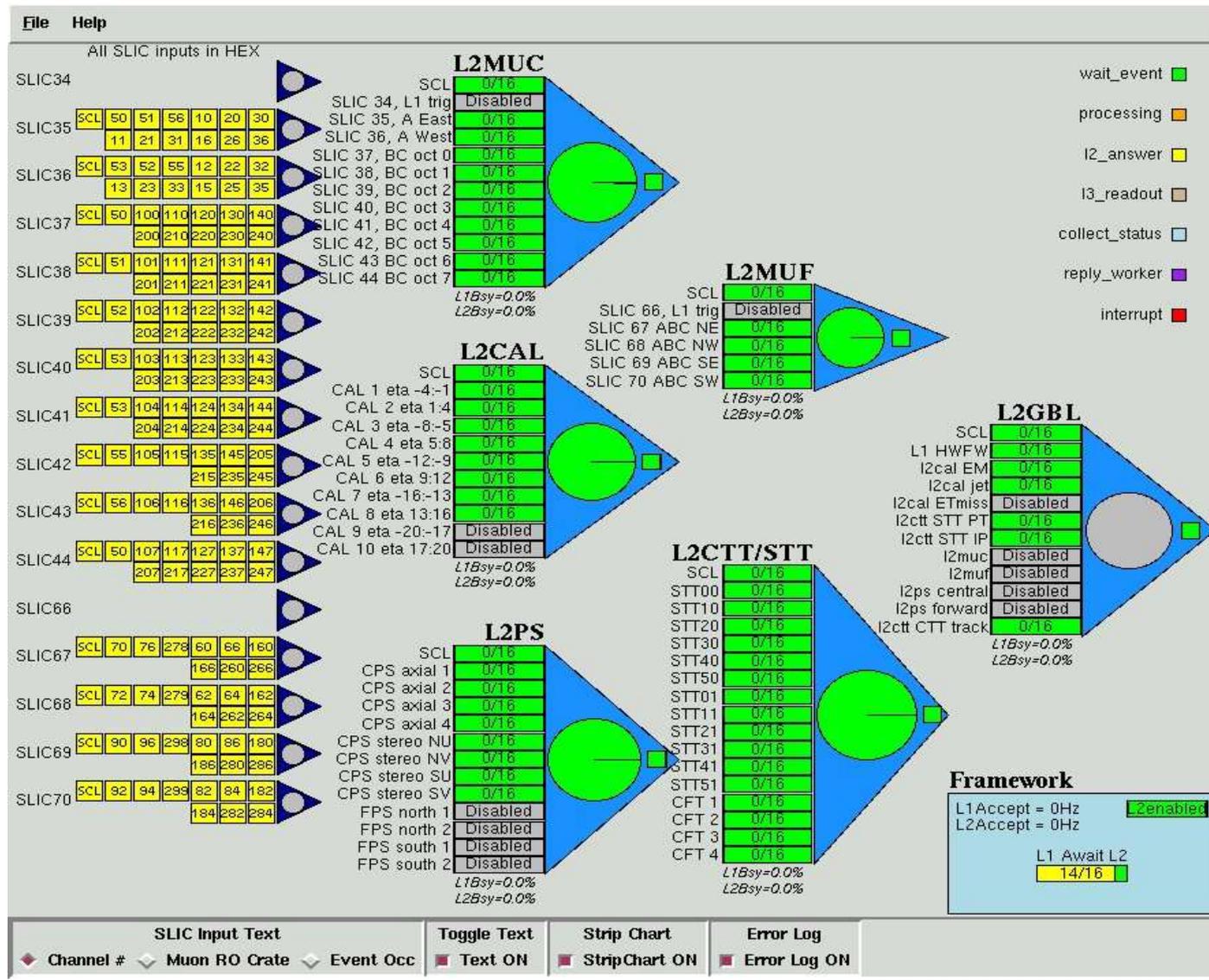
SLIC Input Text Toggle Text Strip Chart Error Log

◆ Channel #
 ◇ Muon RO Crate
 ◇ Event Occ
 ■ Text ON
 ■ StripChart ON
 ■ Error Log ON

L2df - global physics run



L2df - l2gbl is crashed ...



L2 Operations - L2 expert vs. DAQ shifter

- **What are the duties of L2 experts?**
 - diagnose and fix L2
 - apply L2 hammers - medium and large
 - we often help to diagnose DAQ problems and determine whether it is a problem with L2, or not. Certainly, we will try to help.
- **How to contact L2 experts?**
 - DØ building pager: **x4674**
 - primary pager: **(630) 266-0744**
 - or (last resort) secondary pager: (630) 266-0750

L2 Operations - resources

- Where to find L2 documentation?

It is available from L2 web pages:

General L2 web page:

www.pa.msu.edu/hep/d0/l2

L2 online web page:

www-d0online.fnal.gov/www/groups/trigger/l2/online

L2 DAQ web page:

www-d0online.fnal.gov/www/groups/trigger/l2/online/daq_shifter/index.html

L2 expert web page:

www-d0online.fnal.gov/www/groups/trigger/l2/online/expert/index.html

Our first L2 beta

