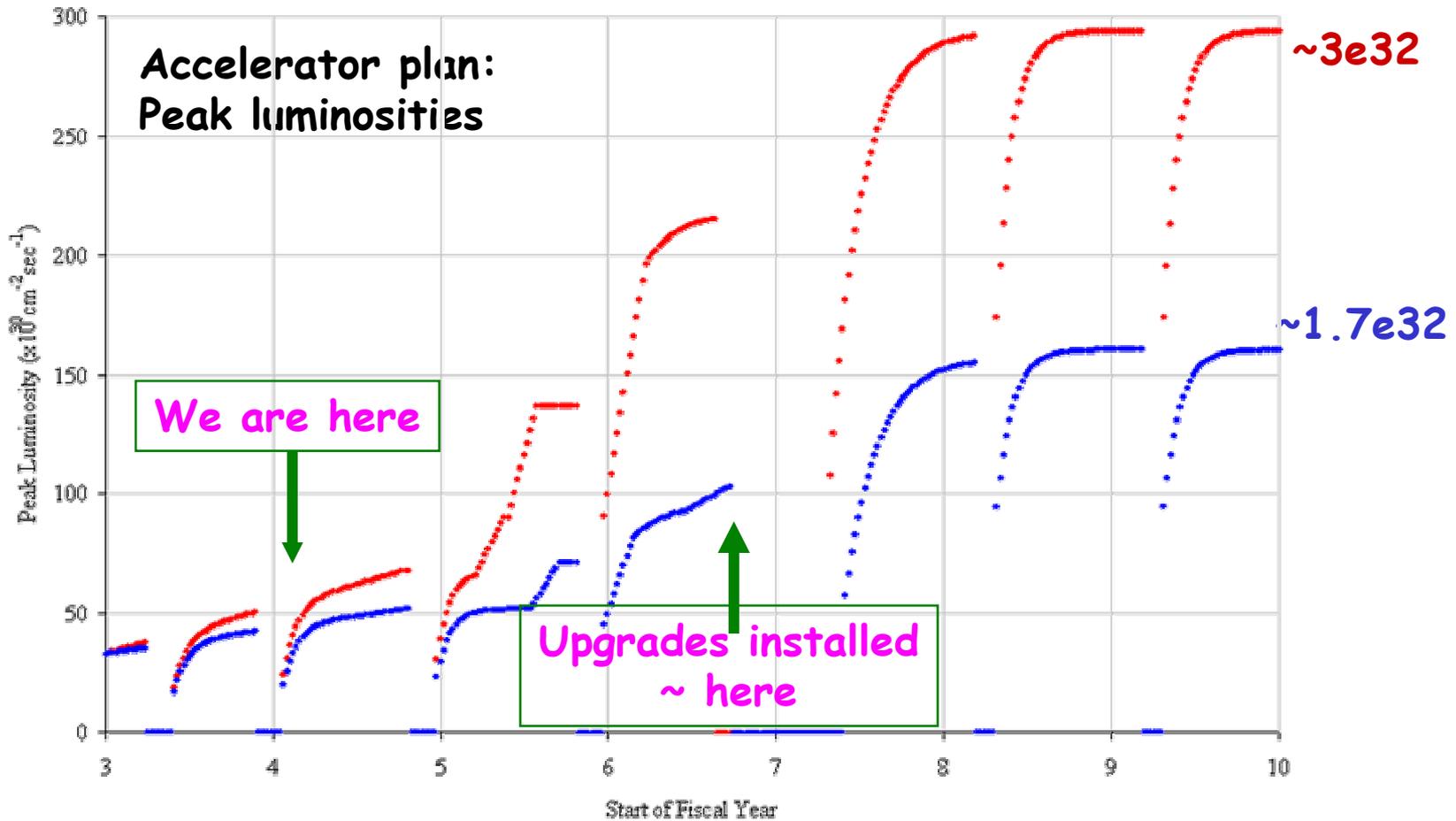
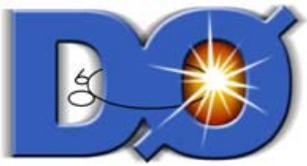
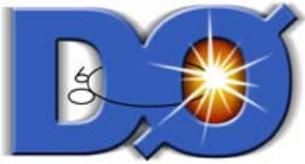


Trigger Upgrade Workshop

- Welcome, and thanks for coming
 - ◆ ~30 registered participants from 15 institutions
- General Goals
 - ◆ Assess technical progress and prototype integration
 - ◆ Plan for
 - ▲ Production
 - ▲ Installation
 - ▲ Commissioning
 - ◆ Review/update trigger lists for 2006
 - ◆ Bring new/interested people up to speed on upgrades





Trigger Menu used so far:

- Core trigger menu, simulated at $L=2e32$, $\Delta t=396$ ns

Trigger	Example Physics Channels	L1 Rate (kHz) (no upgrade)	L1 Rate (kHz) (with upgrade)
EM (1 EM TT > 10 GeV)	$W \rightarrow e\nu$, SUSY, $WH \rightarrow evjj$	1.3	0.7
Di-EM (1 EM TT > 7 GeV, 2 EM TT > 5 GeV)	$Z \rightarrow ee$, $W\gamma$, SUSY $ZH \rightarrow eejj$	0.5	0.1
Muon (muon $p_T > 11$ GeV + CFT Track)	$W \rightarrow \mu\nu$ $WH \rightarrow \mu\nu jj$	6	0.4
Di-Muons (2 muons $p_T > 3$ GeV + CFT Tracks)	$Z \rightarrow \mu\mu$, $J/\Psi \rightarrow \mu\mu$ $ZH \rightarrow \mu\mu jj$	0.4	< 0.1
Electron + Jets (1 EM TT > 7 GeV, 2 Had TT > 5 GeV)	$WH \rightarrow e\nu+jets$ $tt \rightarrow e\nu+jets$	0.8	0.2
Muon + Jet (muon $p_T > 3$ GeV, 1 Had TT > 5 GeV)	$WH \rightarrow \mu\nu+jets$ $tt \rightarrow \mu\nu+jets$	< 0.1	< 0.1
Jet+MET (2 TT > 5 GeV, Missing $E_T > 10$ GeV)	$ZH \rightarrow \nu\bar{\nu}b\bar{b}$, SUSY	2.1	0.8
Muon + EM (muons $p_T > 3$ GeV + CFT track + 1 EM TT > 5 GeV)	$H \rightarrow WW, ZZ$	< 0.1	< 0.1
Single Isolated Track (1 Isolated CFT track, $p_T > 10$ GeV)	$H \rightarrow \tau\tau$, $W \rightarrow \mu\nu$	17	1.0
Di-Track (1 isolated tracks $p_T > 10$ GeV, 2 tracks $p_T > 5$ GeV, 1 matched with EM energy)	$H \rightarrow \tau\tau$, SUSY	0.6	< 0.1

Total L1 bandwidth
= 5 kHz (2.5 kHz?)

Additional
headroom
available from

- topological cuts available in upgraded L1cal

- Higher mu p_T threshold with upgraded CTT

Total rate:

~30 kHz 3.2 kHz



Why Now?

- Last workshop was ~11 months ago in Saclay (L1cal only)
- All prototypes in hand, or nearly so \Rightarrow a good time to think beyond prototyping:
 - ◆ Production
 - ◆ Installation
 - ◆ Commissioning
 - ◆ algorithms
- Date was chosen before Si replacement cancellation - proximity to rebaselining is coincidental



More specific goals

- Plan for production phase
 - ◆ Incorporate what we have learned from the prototypes
 - ◆ Develop clear understandings of who is responsible for what
 - ◆ Identify tasks that have been left out
- Review strategies for installation and commissioning
 - ◆ No long shutdown for Si: when should/can we install
 - ◆ How to minimize downtime for experiment



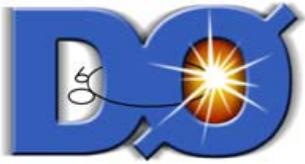
Specific goals (cont.)

- Reassess our physics goals and trigger strategies
 - ◆ What would the trigger upgrades be for us now?
 - ◆ What do we think our trigger menu will look like in 2006?
 - ◆ Take into account our the bandwidth we really expect
- Start to address topics that have had little attention so far
 - ◆ L1cal topological algorithms
 - ◆ L2 algorithms
 - ◆ Controls & monitoring
 - ◆ Digital filtering at 396 ns
 - ◆ AFE replacement
 - ◆ ...



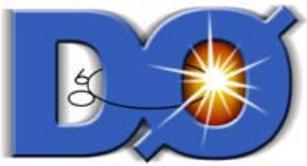
Workshop structure

- A few general talks, leading into lots of discussion
- Breakout sessions on specific topics
- Main sessions in Curia II
 - ◆ Committium available today for parallel sessions
 - ◆ 1 West, 1 North available Sunday for parallel sessions



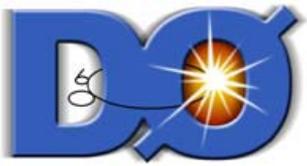
Saturday agenda

	Curia II	Commitium
9:00	Workshop goals: Paul & Darien Upgrade project status: Jon/Vivian	
9:30	L1cal overview: Hal Evans	CTT parallel session
10:00	L1cal discussion	CTT parallel session (cont.)
11:00	L1 Cal-track overview: Ken Johns L1cal & cal-track discussion	CTT parallel session (cont.)
12:00	Lunch	Lunch
1:00	Status: CTT hardware – Status: CTT algorithms/equations –	
2:00	Breakout session #1a	Breakout session #1b
3:00	Breakout session #1a (cont)	Breakout session #1b (cont)
4:00	L2 hardware & algorithms simulation	
5:00	End of Saturday session	
7:00	Banquet – Cuisine of India, Naperville	



Sunday Agenda

	Curia II	1 West
9:00	Trigger list: Run 2a experience and extrapolations Trigger list: 2006 vision	
10:00	Breakout session #2a	Breakout session #2b
11:00	Breakout session #2a (cont.)	Breakout session #2b (cont.)
12:00	Lunch	
1:00	Summaries from breakout sessions	
2:00	Installation & commissioning plans	
3:00	End of workshop	



Workshop Banquet

Saturday, 7:00 PM

- ◆ Cuisine of India, Naperville (maps available)
- \$15/person (including tax & tip)
- Drinks extra
- Please sign up by noon

- **Appetizers**
 - ◆ Vegetable Samosas
- **Main dishes**
 - ◆ Reshmi Kabob (chicken)
 - ◆ Rogan Josh (lamb)
 - ◆ Saag Paneer (spinich, cheese)
 - ◆ Navarttan Curry (vegetables)
- **Desserts**
 - ◆ Gulab Jamun
 - ◆ Mango Kulfi