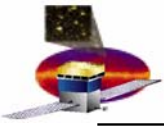


# GLAST Large Area Telescope: I & T Peer Review

## Cost/Schedule Summary

**Brian Grist**  
**SU-SLAC**  
**Subsystem Engineer**

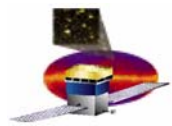
**bgrist@slac.stanford.edu**  
**650-926-2998**



# Outline

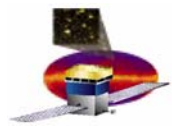
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- **Top Level Summary Schedule**
- **Cost/Schedule Performance Summary**
- **Critical Milestones**



# I&T Top Level Summary Schedule

			FY01					FY02					FY03					FY04					FY05									
<b>+ Key Milestone</b>	<b>Start</b>	<b>Finish</b>																														
<b>+ Preparation - Pre CDR</b>	09JAN02A	15SEP06																														
<b>+ Preparation/Support - Post CDR</b>	04SEP01A	28APR03																														
<b>+ Calibration - Receive</b>	29APR03	20AUG04																														
<b>+ Calibration - Integration</b>	18FEB04	15MAR04																														
<b>+ Calibration - Beam Test Prep, Test, Disassembly</b>	20FEB04	29MAR04																														
<b>+ LAT - Receive</b>	02APR04	14JUL04																														
<b>+ LAT - Integration</b>	16JUN04	27OCT04																														
<b>+ LAT - Test</b>	23JUN04	18JAN05																														
<b>+ LAT - Environmental Test</b>	21JAN05	28FEB05																														
<b>+ LAT - Ready to Ship</b>	01MAR05	27MAY05																														
	31MAY05	01JUN05																														
			<b>LT-RV Summary Schedule</b> 19MAR03 15:42															<b>FL-RV I&amp;T Support</b>														
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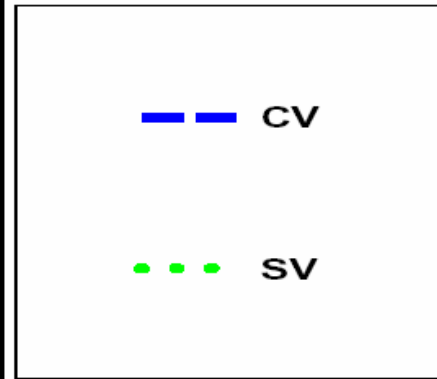
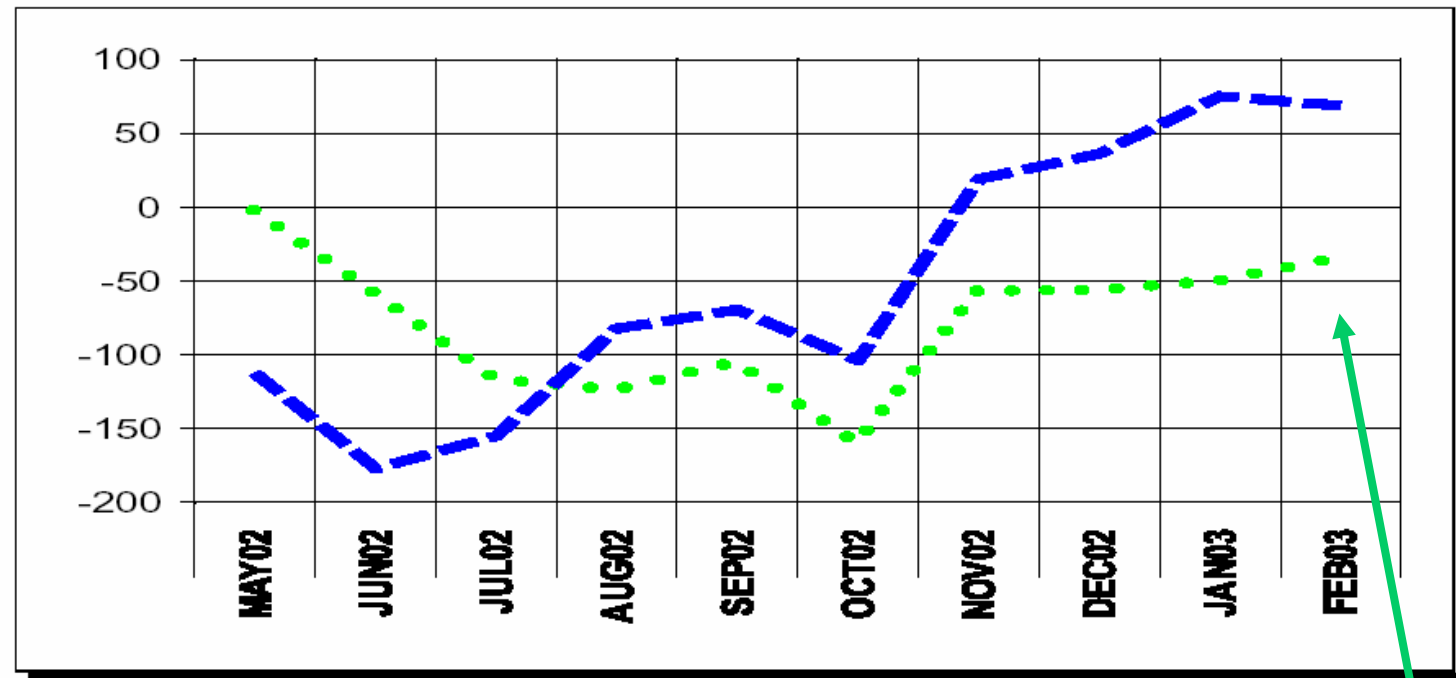
# Cost and Schedule Performance Summary

-2% variance

+5% variance

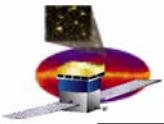
Schedule and Cost Variances are "in the green"

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SV Trend	CV Trend	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
66	4.1.9	6,673	1,562	1,527	1,458	-35	69	23.41	22.89	21.85	↑	↓	0.978	1.047	6,373	6,484



February Month End Data

The monthly Cost Variance trend is negative and the monthly Schedule Variance trend is positive



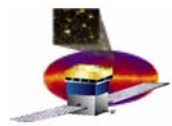
# I&T Critical Milestones

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- **Calibration Unit Critical Need Milestones**
  - Tracker Tower 1, 2                      5 days float before I&T need date
  - CAL Module A, B                      0 days float before I&T need date
  - CAL Module 1, 2                      5 days float before I&T need date
  - TEM 1, 2                      8 days float before I&T need date
  - The rest of the Calibration Unit deliveries have greater than two weeks of float before our need date.
- **Flight Unit Critical Milestones to LAT Integration**
  - EPU's                      12 days float before I&T need date
  - SIU                      17 days float before I&T need date
  - The rest of the Flight Unit deliveries have greater than three weeks of float before our need date.
- **The following 10 charts show the detailed milestone information detailing the deliverables between other subsystems and I&T. The charts are sorted by subsystem.**

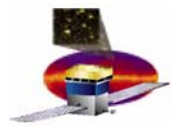






# Milestones from ACD Subsystem to I&T

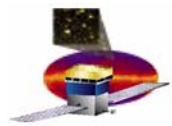
AV	Activity ID	ND	Activity Description	AV: Early Finish	Float	Baseline Finish	Early Finish	FY							
								FY03	FY04	FY05	FY06				
<b>4.1.6 ACD</b>															
<b>4.1.9 I&amp;T</b>															
6	1M1000980	9	Doc defining Backsplash Test Model (ACD to I&T)	01/03/03	0	01/03/03*	01/03/03A		▼						
6	1M1000990	9	ACD Calibration Test Unit at SLAC, Tested & RFI	01/20/04	19	02/17/04*	02/17/04*			▲▼					
6	1M1001000	9	ACD Test Scripts (from ACD to I&T)	04/07/04	81	08/02/04*	08/02/04*			△▼					
6	1M1000410	9	ACD Flight Unit at SLAC, Tested/Inspected & RFI	08/10/04	53	10/25/04*	10/25/04*			▲▼					
Run Date								03/12/03 11:38		GLAST LAT PROJECT		LT-L8: AV: Float to Level 3 Milestones		Report #9	
Data Date								03/01/03		Level 3 Milestones		FL-L8: Level 3 Milestones		Sheet 3	
© Primavera Systems, Inc.										AV: Float		AV: Up Triangle, L3: Down Triangle			



# Milestones from Electronics Subsystem to I&T

AV	Activity ID	ND	Activity Description	AV: Early Finish	Float	Baseline Finish	Early Finish	Fiscal Year			
								FY03	FY04	FY05	FY06
<b>4.1.7 Electronics</b>											
4.1.9 I&T											
7	1M1001420	9	AEM H/W driver final ver-ELX to I&T/Online	11/15/02	-40	09/20/02	11/15/02A				
7	1M1001340	9	GEM H/W driver, init ver-ELX to I&T/Online	09/20/02	37	11/12/02	09/20/02A				
7	1M1001410	9	TEM H/W driver, final ver-ELX to I&T/Online	09/30/02	36	11/19/02	09/30/02A				
7	1M1001360	9	FSW system spec-ELX/FSW to	12/16/02	4	12/20/02	12/16/02A				
7	1M1001460	9	IPS description-ELX to I&T/Online	12/16/02	5	12/23/02	12/16/02A				
7	1M1001210	9	AEM H/W driver, init ver-ELX to I&T/Online	11/15/02	25	01/02/03*	11/15/02A				
7	1M1001310	9	AEM data taking desc-ELX to I&T/Online	11/15/02	25	01/02/03*	11/15/02A				
7	1M1001390	9	GEM h/w driver, final ver-ELX to I&T/Online	04/16/03	-69	01/07/03	04/16/03				
7	1M1001490	9	SIS description-ELX to I&T	03/28/03	23	04/30/03*	04/30/03*				
7	1M19500500	9	CU IPS - ELX to I&T/Online	04/15/03	11	04/30/03*	04/30/03*				
7	1M7941150	9	EGSE EM2 Release-Elec to I&T	05/19/03	17	06/12/03*	06/12/03*				
7	1M19500400	9	CU S/C Simulator - ELX to I&T Online	07/22/03	28	08/29/03*	08/29/03*				
7	1M7941160	9	EGSE Calibration Unit Release-Elec to I&T	01/05/04	7	01/14/04	01/05/04				
7	1M7941120	9	EM2 TEM Assy A,B-Elec to I&T	10/08/03	83	02/17/04*	02/17/04*				
Run Date		03/12/03 11:38		<b>GLAST LAT PROJECT</b>				LT-L8: AV: Float to Level 3 Milestones			
Data Date		03/01/03		<b>Level 3 Milestones</b>				FL-L8: Level 3 Milestones			
© Primavera Systems, Inc.		<b>AV: Float</b>				AV: Up Triangle, L3: Down Triangle				Report #9 Sheet 4	

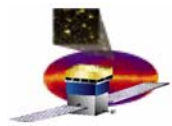




# Milestones from Electronics Subsystem to I&T

AV	Activity ID	ND	Activity Description	AV: Early Finish	Float	Baseline Finish	Early Finish	FY									
								FY03	FY04	FY05	FY06						
4.1.9 I&T																	
7	1M7940990	9	Flight TEM Assy 11, 12-Elec to I&T	05/14/04	72	08/26/04*	08/26/04*				▲▼						
7	1M7941000	9	Flight TEM PS Assy 11, 12-Elec to I&T	05/24/04	66	08/26/04*	08/26/04*				▲▼						
7	1M7941010	9	Flight TEM Assy 13, 14-Elec to I&T	05/21/04	77	09/10/04*	09/10/04*				▲▼						
7	1M7941020	9	Flight TEM PS Assy 13,14-Elec to I&T	06/01/04	71	09/10/04*	09/10/04*				▲▼						
7	1M7941070	9	Flight ICM/GLT-Elec to I&T	07/23/04	40	09/20/04*	09/20/04*				▲▼						
7	1M7941080	9	Flight SIU-Elec to I&T	08/25/04	17	09/20/04*	09/20/04*				▲▼						
7	1M7941090	9	Flight Event Processor Units-Elec to I&T	09/01/04	12	09/20/04*	09/20/04*				▲▼						
7	1M7941100	9	Flight ACD Elec Module-Elec to I&T	07/23/04	40	09/20/04*	09/20/04*				▲▼						
7	1M7941110	9	Flight Harness-Elec to I&T	07/23/04	40	09/20/04*	09/20/04*				▲▼						
7	1M7941030	9	Flight TEM Assy 15, 16-Elec to I&T	05/28/04	82	09/24/04*	09/24/04*				▲▼						
7	1M7941040	9	Flight TEM PS Assy 15,16-Elec to I&T	06/08/04	76	09/24/04*	09/24/04*				▲▼						
Run Date								03/12/03 11:38		GLAST LAT PROJECT				LT-L8: AV: Float to Level 3 Milestones		Report #9	
Data Date								03/01/03		Level 3 Milestones				FL-L8: Level 3 Milestones		Sheet 6	
© Primavera Systems, Inc.								AV: Float				AV: Up Triangle, L3: Down Triangle					





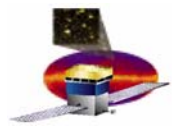
# Milestones from SAS Subsystem to I&T

AV	Activity ID	ND	Activity Description	AV: Early Finish	Float	Baseline Finish	Early Finish	Fiscal Year					
								FY03	FY04	FY05	FY06		
<b>4.1.D Science Analysis Software</b>													
4.1.9 I&T													
D	1M1001120	9	Tracker Dead/Noisy Strips (SAS to I & T)	10/14/02	-79	06/21/02*	10/14/02A	▼	Agreed to 10/02				
D	1M1001110	9	Calorimeter Calibration Prototype Coding SAS-I&T	10/14/02	-69	07/08/02	10/14/02A	▼	Agreed to 10/02				
D	1M1001130	9	Tracker Tower & Tray Alignment (SAS to I&T)	01/06/03	11	01/22/03*	01/06/03A	▼	Concept				
D	1M1001570	9	CU Monte Carlo sim from SAS to I&T/SVAC	10/22/02	156	06/13/03*	10/22/02A	▼					
D	1M1001620	9	LAT Calibr algorithms & Doc- SAS to I&T SVAC	06/26/03	280	08/12/04*	08/12/04*	△			▽		
D	1M1001690	9	LAT Monte Carlo simulation by SAS to I&T SVAC	01/27/04	200	11/08/04*	11/08/04*			△	▽		

Run Date 03/12/03 11:38  
 Data Date 03/01/03  
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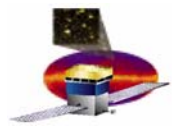
**GLAST LAT PROJECT**  
**Level 3 Milestones**  
**AV: Float**

LT-L8: AV: Float to Level 3 Milestones  
 FL-L8: Level 3 Milestones  
 AV: Up Triangle, L3: Down Triangle  
 Report #9  
 Sheet 10



# Milestones from I&T to other Subsystems

AV	Activity ID	ND	Activity Description	AV: Early Finish	Float	Baseline Finish	Early Finish	FY				
								FY03	FY04	FY05	FY06	
<b>4.1.9 I&amp;T</b>												
4.1.2 System Engineering												
9	2S201370	2	LAT Assembly Readiness Review	04/13/04	0	04/13/04	04/13/04			⚠		
9	2S201390	2	Pre-Environmental Readiness Review-incl	02/15/05	0	02/15/05	02/15/05				⚠	
9	1M1000130	2	LAT Ready to Ship	07/25/05	28	09/01/05*	09/01/05*				⚠	
4.1.4 Tracker												
9	1M1001514	4	EM1 EGSE WS-S/W R2 I&T to TKR	12/13/02	-6	12/05/02	12/13/02A	⚠				
4.1.5 Calorimeter												
9	1M1001511	5	EM1 EGSE WS-S/W R2 I&T to CAL	12/13/02	-6	12/05/02	12/13/02A	⚠				
9	1M1001520	5	EM CAL Returned to NRL (arrives on dock)	07/21/03	29	08/29/03*	07/21/03		⚠			
4.1.6 ACD												
9	1M1001510	6	EM1 EGSE WS-S/W R2 I&T to ACD	12/13/02	-6	12/05/02	12/13/02A	⚠				
4.1.7 Electronics												
9	1M1001512	7	EM1 EGSE WS-S/W R2 I&T to ELX	12/13/02	-6	12/05/02	12/13/02A	⚠				
9	1M1001500	7	Online EM2 release #1 to FSW	06/02/03	-22	04/30/03	06/02/03		⚠			
9	1M1001550	7	Online EM2 release #2 to ELX	06/26/03	0	06/26/03	06/26/03		⚠			
4.1.9 I&T												
9	1M1000320	9	Flight Tracker Tower 1, 2 RFI from I&T to I&T	07/14/04	61	10/08/04*	10/08/04*			⚠	⚠	
9	1M1000330	9	Flight Calorimeter Tower 1,2 RFI from I&T to I&T	07/14/04	61	10/08/04*	10/08/04*			⚠	⚠	
Run Date		03/12/03 11:38		<b>GLAST LAT PROJECT</b>				LT-L8: AV: Float to Level 3 Milestones				Report #9
Data Date		03/01/03		<b>Level 3 Milestones</b>				FL-L8: Level 3 Milestones				Sheet 8
		© Primavera Systems, Inc.		<b>AV: Float</b>				AV: Up Triangle, L3: Down Triangle				



# Milestones from I&T to other Subsystems

AV	Activity ID	ND	Activity Description	AV: Early Finish	Float	Baseline Finish	Early Finish	Fiscal Year					
								FY03	FY04	FY05	FY06		
4.1.B Instrument Operations Center													
9	1M1001513	B	EM1 EGSE WS-S/W R2 I&T to IOC	12/13/02	-6	12/05/02	12/13/02A		▲				
9	1M1001740	B	Online FU S/W Final Release-I&T to IOC	06/14/05	4	06/20/05*	06/20/05*				▲		
Run Date								03/12/03 11:38	GLAST LAT PROJECT			LT-L8: AV: Float to Level 3 Milestones	Report #9
Data Date								03/01/03	Level 3 Milestones			FL-L8: Level 3 Milestones	Sheet 9
© Primavera Systems, Inc.									AV: Float			AV: Up Triangle, L3: Down Triangle	