

GLAST Large Area Telescope:

**Electronics, Data Acquisition &
Flight Software W.B.S 4.1.7**

Monthly Status 12-02-04

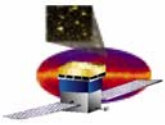
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Test-Stand Summary

Client	Shipped	Assemble/Test	Total
Calorimeter (conformal)	11	3 TEM	14
Calorimeter	5	0	5
Tracker (conformal)	2	0	2
Tracker	9	0	9
ACD	4	0	4
I & T* (next slide)	5	0	5
DAQ/FSW	12	0	12
Electronics Support	11	0	11
Total	59	3	62

- **Finished TKR test-stands**
- **Produced and shipped one TPS which replaced the earlier vib failure.**
- **3 more CAL FM TEM-only coated/staked, in testing. To be shipped this week.**
- **ACD test-stands: were upgraded with LCB and are all working**
 - **I/V monitoring of one redundant-side GASU broke: looks like wire from monitor circuit which was hand-wired into a earlier version PCB**
 - **Ship back for repair when convenient**
- **NRL LCB's are being upgraded (have about 4 of the new ones working)**



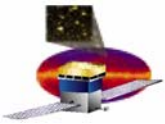
ASIC

- All GTCC1, GCCC1 TEM ASIC's screened
 - Qualification testing at GSFC has started
 - SLAC test-station operational at GSFC
 - Thermal testing done, passed
- GLTC ASIC's (for GASU)
 - Screening hardware debugged, working
 - Test software in progress, ready within 2 weeks



ACTEL

- Received UMC line FPGA's
- Programmed, lead-formed 4 sets
- 3 sets were put on TEM flight boards at assembler
 - Testing next week
- One set was set to GSFC for DPA
 - Possible issue on 72-series device with one bond lifting at 0.6 g. (2.5g is Mil-spec min)
 - Several discussions/telecons SLAC/ACTEL/GSFC
 - ACTEL provided another 72 device to GSFC for more DPA
 - Issue now: contamination on some bonding pads, GSFC is rejecting lot
 - Telecon to follow



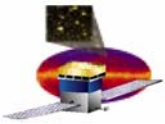
TEM/TPS Production

- **Reminder: The part kit was received at GT Sept 20**
- **More Delays at General Technology (technical & priority)**
 - **GT dropped all 3 TEM boards after SM assembly (3 feet to floor)**
 - **Mechanical damage to corners**
 - **NCR created**
 - **Thought to be ok, but wait for assessment until board testing is complete**
 - **Needs some touch-up, details being worked on**
 - **FPGA with Nusil assembly**
 - **First problems using reflow oven, device lifted up**
 - **Then we were told that use of METCAL rework station can be used**
 - **Latest is that device still lifted up enough to yield solder bridges**
 - **FPGA's on one TEM were assembled and need rework/touch-up**
 - **FPGA's on two TEMs were hand-soldered**
 - **Next is in-circuit test and connector assembly**
 - **Were told that first TEM is ready Thursday next week for function/performance testing**
 - **Will send engineers next week Tuesday.**
- **TPS ready for test one week after TEM**



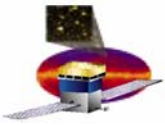
TEM/TPS Schedule Qual, TWR-A, TWR-B

- **Schedule supplied by GT last month, but now 4 weeks delay from these dates**
 - **TPS complete with SMT (done)** 11/1
 - **TEM complete with SMT (done)** 11/2
 - **TPS QA (done)** 11/2
 - **TEM QA (done)** 11/3
 - **MECH ASSY TEM and TPS HEATSINK, ATTACH VR5 (done)** 11/4
 - **TEM and TPS QA (done)** 11/5
 - **TEM and TPS thru hole** 11/8
 - **TEM and TPS QA** 11/9
 - **TEM and TPS SPEA** 11/11
 - **TEM and TPS install cable assys, aqueous clean** 11/15
 - **TEM and TPS staking** 11/16
 - **TEM and TPS QA** 11/17
 - **TEM AND TPS AVAILABLE FOR SLAC PERSONNEL** 11/18
- **TC/Temp test/review** 12/13
- **Mating of TEM/TSP, test, vibration, TC, ship to SLAC** 12/31
- **TVAC, EMI, deliver to I&T** 01/17



GASU & GASU-PS & PDU

- **Internal harness for GASU, PDU, SIU**
 - **Out for RFP**
- **PDU**
 - **Enclosure in fabrication**
 - **PDU flight fab received, 9 out of 12 failed coupon testing at GSFC**
 - **in discussion with DDI**
 - **Flight board/box assembly out for RFP**
 - **Old Issue: OMNIREL linear-regulator. Recalled lot which was received by SLAC. (Tantalum cap used has end-termination with pure Sn as opposed to Sn/Pb. Can't use in space.) New delivery in Feb 05.**
 - **Preliminary detailed schedule shows PDU QUAL&FLT delivered to SLAC 3/15 and delivery to I&T 3/30**
- **GASU**
 - **Enclosure in fabrication**
 - **PCB in fabrication**
 - **Flight board/box assembly out for RFP**
 - **Same schedule as PDU**



SIU & LAT Harness

- **SIU**
 - Enclosure in fabrication
 - Flight PWB LCB, CPS, Back-plane in fabrication
 - SIB board layout being finished, then sign-off-> fabrication
 - All boards have 32-mil finished hole size +/- 3 mil
 - Parts: PCI ERNI Connector not approved yet (need screening specifications)
 - Potential issue with Sn (wiskers). Material lab at SLAC shown Ni with some Sn plating
 - Connectors being sent to GSFC for analysis
 - SOW for board, crate assembly to be written
 - Process is assembly of boards at vendor, testing and crate integration at SLAC
- **LAT Harness**
 - Out for RFP



Misc

- **RAD750 EEPROM versus PROM**
 - Resolved: enable cache, use 4 boot images and do checksums
- **PIND failures of Austin EEPROM's for SIB**
 - Use devices which passed, need to buy additional 19 parts, no schedule risk since those are for spare boards
- **EMI testing**
 - Out for RFP



Schedule/Budget

- Total budget: \$22,055
- Work Scheduled up to date: \$20,778
- Work Performed: \$18,293
- Actuals: \$20,978
- Schedule Variance \$-2,485k (-12%)
 - Qual/Flight work should have been started, reflects current status
- Cost Variance: \$-2,684k (-12%)
 - Mainly EGSE, GASU, PDU, testbed are over budget, see spread-sheets supplied to project