Tracker Electronics Assembly Database

GLAST Ground Software Workshop
at SLAC Training Center A/B

January 16, 2001

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Tracker Electronics Assembly Database
Tracker Multi-Chip Module (TMCM)

Assembly steps:
1) PC board
2) passive components
3) right-angle interconnect (RAI)
4) ASIC chips (GTFE64 and GTRC)
• 648 TMCM’s to be assembled
  – 18 towers, 36 layers/tower
• 15,552 front-end chips (GTFE64)
  – 24 chips/layer
  – 60-70 wafers
• 1296 controller chips (GTRC)
  – 2 chips/layer
  – 2-3 wafers
Tests and Measurements

- **Component test**
  - Electric test of GTFE64/GTRC on a wafer with a probe card
  - Continuity, dead short, HV rating of PC board (by manufacturer?)

- **Functionality test**
  - Commanding, data transmission, trigger

- **Performance test**
  - Gain and noise of all channels
  - ToT distribution

- **Burn-in test**
  - Keep TMCM powered and operated for a week
Summary table

- ID number
- Batch numbers (PC board, wafer, RAI)
- Assembly status
- Bad channel list
- Minor problems to note
- TMCM rating

Complete list of bad channels
- dead, too noisy, gain too low

Overall rating
- excellent, good, spare, rejected

ToT distribution?

Assembly log
- Date & time
- ID number
- Operator’s name
- Type of operation
- Result

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Electric test log
- Date & time
- ID number
- Tester’s name
- Type of test
- Test result

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Burn-in test log
- Starting date & time
- Stopping date & time
- List of ID numbers
- Tester’s name
- Type of test
- Test result
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Issues

• What to keep track of?
  – Chips, connectors, PC board, passive components, …
  – Should we name each? Is a batch number enough?
  – What does NASA and DOE require?

• Where to store?
  – All at SLAC? All at UCSC?
  – If distributed, how to make them updated correctly?
  – How does Pisa upload test results of TMCM on a tray?

• What to be made public?
  – All? Summary only?

• Where to make it public?
  – At SLAC? At UCSC? Both?