Pitch adapter shift

Left size (channel 1) MCM100

Right size (channel 1536) MCM100
Back side of the left corner of the MCM103

change of color corresponds to the start of the not well glued part of the pitch adapter (~100 channels)
The HV line, the GND line and some channels are wrapped around the PCB edge. MCM110.
MCM101 left edge.
MCM101 right edge. The flex circuit is cut just at the end of the bondable zone, showing the insulating Kapton layer.
Bonding pad shape problems

Possible mounting correction ~0.3mm

- Right side pads planarity:
  - After 0.3mm PCB tilt correction

- Left side pad planarity:
  - Tray reference

- TG17 MCM alignment

TS01 MCM alignment

After 0.3mm PCB tilt correction

Tray reference

left side pad planarity

right side pad planarity
Pitch adaptor pitch errors

The coordinates of the pads of the pitch adapters of the new MCMs have been measured. The measurements shows that the pitch adapters are ~0.2mm longer than the nominal length. In the graphs are plotted the deviations of the pads positions from the nominal values.
The same measurements have been taken on 2 MCMs of the Engineering Model series. The MCM1 has a negative error (the pitch adapter is shorter than the nominal), the MCM2 has a negligible error.
Number of hits per event

Source profile

TOT left (always 0 because all FE read from right)

Number of clusters per event

TOT right
Occupancy as a function of TACK delay and injected charge for one “connected” channel of the MiniTower tested in April
Occupancy for a disconnected channel (MCM 103)
very sharp transition (1-2 DAC counts) between 0-1

Occupancy for a connected channel (MCM 103)
100% occupancy never reached
20 strobes per channel (TG017back), injected charge is well above threshold!

20-50% occupancy with large, apparently random distributed, fluctuations from one run to another.

Disconnected channels?

Strips 0-200 disconnected (see pitch adapter problems): 100% occupancy
FrontEnd trigger rate monitoring as a function of the threshold (TG017back),

Disconnected channels (very low noise)

Connected channels
Trigger rate few Hz (cosmics) above a threshold of 30 DAC counts

Disconnected channels (very low noise)
Disconnected channels: 100% occupancy

Treq

Ch1

Ch2

Ch3

Ch4

Tack

18 Acq's
Connected channels: 20-50% occupancy

Very often (50-80% of the strobes) no trigger request at all. Large fluctuations on Treq duration (not always correlated with the amount of injected charge)