MDT Electronics
Overview of Tasks

Electronics for Chamber Production

Mezzanine Lite PC Board

Final Production Electronics

ASD Development Summary

Wilkinson ADC
Bipolar Shaping
Programmable Control and Charge Injection
Full Octal Prototype
Production Plans

Signal Hedgehog PCB

Summary
Final subcircuits prototyped/tested this year

- Wilkinson ADC (2nd prototype)
- Bipolar Shaping
- Programmable Control and Charge Injection
- Full Octal Prototype

Production Plans

- Test Octal Prototype starting in 1/00
  - if it works:
    - Engineering run of ~10 wafers
  - if modifications are needed
    - Additional prototype run

Production in FY02
Final 4-channel prototype:

"ASD-Lite" (10k channels built) plus digital programming
Built and Tested this year by C.Posch (BU Engineer)
First full prototype ASD: if it works, we’ll use it for production
Joint design effort: J. Oliver (Harvard) and C. Posch (B.U.)

Submitted: 10/1/00   Due back: 1/1/01

Initial. testing, Radiation qualification at CERN by C. Posch
MDT Electronics
Mezzanine Board "Lite"

Rev D – Oct 99
- Full 24-channel prototype
- 10 produced
- Basically functional but with some problems:
  - Noise levels high
  - Cabling didn't fit inside faraday cage shield
  - AMT−0 prototype TDC was unreliable

... Rev E

... Rev F
- Several intervening prototypes constructed to optimize key system characteristics.

... Rev G

... Rev H
- Current revision is very close to final production board

Rev J – Oct 00 – many steps towards final design:
- AMT−1 (production prototype) TDC used (much more reliable)
- All I/O signals on a single 36-pin connector
- Noise levels much lower
- Under test on chamber at Harvard
- 50 boards in production now

Rev H – Sep 00
- Switch to AMT−1 TDC
- Shorten board and move connector for compatibility with endcap chamber faraday cage
- Now being tested!
B.U. responsible for 4,400 signal hedgehog boards

~300 boards produced for module–0 chambers

Computer monitored HV Test setup for 16 boards built

Production is on hold pending various ATLAS–mandated design changes. Components in stock for 600 boards (first year chamber needs for US production sites)