MDT Electronics
Overview of Tasks

Electronics for Chamber Production

ASD Lite Chip
Mezzanine Lite PC Board

Final Production Electronics

ASD Development Summary
Wilkinson ADC
Bipolar Shaping
Programmable Control and Charge Injection
ASD Timeline

Signal Hedgehog PCB

Summary
**ASD Lite Features:**

- 4-channel complete ASD
- Externally controlled threshold, hysteresis, bias
- Linear output for one channel

**ASD Lite Status:**

- Extensively tested on-chamber with good results
- 16k chips produced - 4,400 packaged
- Semi-automatic test station ready

**Remaining Tasks:**

- Test 10k channels plus spares
- Assemble on Mezzanine Boards and Distribute
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Mezzanine Lite

Mezzanine Lite Features:

- 24 Channel Readout Board with TDC
- JTAG Programming Interface for TDC Control and Thresholds
- Very Similar to Final Board - Can be used for full system tests

Mezzanine Lite Status:

- Prototypes under test at B.U., Harvard, Michigan, Rome
- Production ready to begin when tests completed
- Test Station is under construction (waiting readout module from Michigan)
How to get from "ASD Lite" to the final product...?

We need:

- **Wilkinson ADC**
  Tested - results next

- **Programmable Control and Charge Injection**
  Test chip to submit on 11/1/99

- **Bipolar Shaping**
  Test chip to submit before end of year

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**MDT ASD Schedule**

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- **NOW**
- **Calendar 2000**
- **Calendar 2001**

- **ADC Test chip (done)**
- **Bipolar Shaper Test (in progress)**
- **Programmable Control Test (in progress)**
- **First full prototype**
- **Second Full Prototype**
- **Production**
Prototype ASD Chip With Wilkinson ADC
(conventional capacitor run-down technique)

Tested On-chamber with Am Source
   Results shown below--as expected

(more extensive tests in test beam planned for next year)

Wilkinson ADC output vs Charge measured on digital scope

Pulses in linear Region (smaller than 100mV)
2 or 3 slides from Christoph go here:

- Summary of ASD programmable features
- One simulation plot of DAC
- Color layout picture of test chip
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Signal Hedgehog PCB

24 Channel Board - mounts directly on tubes
   Carries signals to Mezzanine Board

Prototypes tested by various collaborators
   First Production of 100 boards completed

300 needed for module-0 chambers

Hedgehog Connectors
HV Caps

Mezzanine+Hedgehog Stack
Mounted on Prototype MDTs
Electronics for Chamber Production

10k channels for chamber testing:
- ASD Chips produced; PC boards well underway
- PCB production and testing will be completed this year

Final Production Electronics

ASD Development
- Various test chips will lead to production in 2001
- First octal prototype will be done in FY2000

Signal Hedgehog PCB
- 100 Produced, 200 more needed this year
- Final production will start in mid-2000