

MVD Status

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**Detector Council Meeting
November 15, 1996**

**Recent Progress
Milestones
Short-term goals
Issues and Concerns**

Recent Progress - Mechanical

Complete designs

Cooling system, motherboard, cables

Complete to some level

Develop assembly and installation procedures

Much progress - "final" draft

Preliminary Design Review

Complete

Finalize silicon strip detector design

Complete

Finalize pad detector design in September

Pending arrival and testing of both standard and double metal prototypes

Ongoing...

Additional Mechanical Progress

Finite element analysis of rohacell cage
Addressed stress levels at Si/glue joint

Completed Rohacell environmental studies
Long-term studies continue

Investigated rad-hardness of Rohacell

Finite element analysis of air cooling with
updated MCM (size, die size, plenum
dimensions, power levels) 20oC @ 9m/s
Currently machining components for
full-system test

Draft of MVD lift table proposal

Recent Progress - Electronics

Analysis of beam test data

Further studies with laser station

Finalize input for final ASIC development

In progress- nearly finished

Design TGV5 tiny

Rework discriminator threshold, add variable feedback resistor

Submit for fab in mid-July

Submitted in October

Design and procure preprototype MCM

Design now, fab in Sept/Oct

Will begin die testing using probe cards

*Design complete, untested die,
submitted in October*



Milestones

Mechanical

| | | |
|----------------------------|---------------|-------------------------|
| Strip Detector Design | Jun-96 | |
| <i>Pad Detector Design</i> | <i>Oct-96</i> | <i>Double vs Single</i> |
| MVD chain test | Apr-96 | Loose ends on analysis |
| Preliminary Design Review | Aug-96 | |
| MCM Cooling Design Review | Aug-96 | |
| All detectors received | Apr-97 | |
| Final Design Review | Dec-96 | <i>Probably Jan-Feb</i> |
| Subassemblies complete | Mar-98 | |
| Assembly complete | Oct-98 | |

FEE

| | | |
|-------------------------|---------------|-----------------------------------|
| Review AMU/ADC r1 | Mar-96 | |
| Review TGV r2 | Nov-95 | |
| Review AMU/ADC "r2" | Jan-97 | Design started Oct96, submit Nov? |
| <i>Review TGV5 tiny</i> | <i>Nov-96</i> | <i>Submitted Oct96</i> |
| Review TGV "r3" | Feb-97 | |
| Test preprototype MCM | Nov-96 | Probably in Jan97 |
| Prot. MCM vendor rev. | Mar-97 | Could slip by several months |
| <i>FEE PDR</i> | <i>Oct-96</i> | <i>Dec 3 via video conference</i> |
| MCM design complete | Oct-97 | |
| Chip fab complete | Oct-97 | |
| MCMs complete | Apr-98 | |

Possible additional milestones:

Mechanical

| | |
|--------------------------------|---------|
| All detector and cables tested | Aug-97 |
| 1st C-section complete | Nov-97 |
| Motherboard assembly complete | Nov-97? |
| Cooling system complete | Apr-97? |

FEE

| | |
|-----------------------------|---------|
| Chain test prior to FEE fab | May-97 |
| FEE FDR | Feb-97? |
| Test MCM proto in beam test | Oct-97? |

Short-term goals (2-3 months)

Mechanical

Prepare for FDR

Finalize pad detector design

Water cooling prototype

Full system cooling tests

Finish full-scale mechanical prototype tests

Develop RF enclosure forming procedures

Final touches on assembly and installation

FEE

Common FEE review

Finalize analysis of beam test data

Submit AMU/ADC r2

Test TGV5

Beam test plans for 97

Test pre-prototype MCM

Investigate options for testing die

PDR

Identify more manpower resources

Issues and Concerns

FEE

Finalize design and reach full channel density
Schedule uncertainty

MCM

Known Good Die a problem unsolved by industry

Testing costs underestimated
Need a pre-prototype small MCM
Cost not in estimate - LANL funds used

Medium-scale test in beam

Labor costs not in current estimate

Detectors

Number of spares - beam test

Manpower

Need help for assembly, testing, installation, simulations, calibration & analysis software