

CSC Trigger Review

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Outline:

- Milestones
- Project Planning



Muon Trigger Status/Plans

Prototype 1 tests now complete

Prototype 2 and production follow EMU components to optimize technology

MPC, SP, CCC modules, backplane* milestones:

- **Apr-02 Prototype 2 designs done**
 - Freeze CSC-DT interface
 - Determine DDU compatibility with OSU module for EMU
- **Sep-02 Prototype 2 construction done**
- **Apr-03 Prototype 2 testing done**
- **Sep-03 Final designs done**
- **Oct-04 Production done**
- **Apr-05 Installation done**

(*backplane schedule ~3 months ahead of above dates to provide platform for testing and integration)

CSC Sorter module: only 1, design by Jan-04



FY02-03 L4 Milestones

MPC Proto 2:

- Conceptual Design & Firmware Complete 2/28/02
- Schematic Complete 5/31/02
- Layout Complete 7/31/02
- (Fabrication/Assembly Complete 9/30/02 = L3 Milest.)
- (Finish MPC Proto. 2 Test 3/18/03 = L3 Milest.)

SR/SP Proto:

- Conceptual Design Complete 3/30/02 - 4/15/02
- Schematic Complete 5/31/02
- Layout Complete 9/30/02
- Transition Board Complete 3/30/03
- (Fabrication/Assembly Complete 11/30/02 = L3 Milest.)
- (Finish SR/SP Proto. Test 4/1/03 = L3 Milest.)

Backplane Proto 2:

- Specification Complete (use EMU) 12/31/01
- Routing Complete 9/30/02
- (Fabrication/Assembly Complete 11/30/02 = L3 Milest.)
- (Finish Bckpl Proto. 2 11/30/02 = L3 Milest.)

CCC Proto 3:

- Specification Complete 12/31/01
- Design Complete 5/15/02
- Layout Complete 6/15/02
- (Fabrication/Assembly Complete 8/19/02 = L3 Milest.)
- (Finish CCC Proto. 3 Test 10/28/02 = L3 Milest.)



Testing Plans

MPC	10/1/02-12/31/02
SR/SP	12/1/02-4/30/03
MPC-TMB	7/1/02-12/31/02
<ul style="list-style-type: none">• Include TMB tests 7/1/02-9/30/02	
MPC-SR/SP	3/1/03-4/30/03
<ul style="list-style-type: none">• Include Optical tests• 2 Front-stuffed SR/SP testers	
Fast Site Chain Testing	5/1/03-6/30/03
<ul style="list-style-type: none">• Include TTC components	
Structured Beam Test	7/1/03-9/30/03 ?
DT-CSC	7/1/03-9/30/03
<ul style="list-style-type: none">• Include Transition Board	



FY02-05 L2,3 Milestones - I

Begin Proto. 2

- Begin MPC Proto. 2
- Begin SR/SP Proto.
- Begin Bckpl Proto. 2
- Begin CCC Proto. 3
- Begin Sort Proto.

5/14/01

10/1/01 ✓
10/1/01 ✓
10/1/01 ✓
10/1/01 ✓
5/14/01 ✓

Finish Proto. 2

- Finish MPC Proto. 2
- Finish SR/SP Proto.
- Finish Bckpl Proto. 2
- Finish CCC Proto. 3
- Finish Sort Proto.

6/24/03

9/30/02
11/30/02
11/30/02
8/19/02
6/24/03

Finish Proto. 2 Test

- Finish MPC Proto. 2 Test
- Finish SR/SP Proto. Test
- Finish Bckpl Proto. 2 Test
- Finish CCC Proto. 3 Test
- Finish Sort Proto. 2 Test

9/30/03

3/18/03
4/30/03
4/30/03
4/30/03
9/30/03

Finish Final Design

- Finish MPC Final Design
- Finish SR/SP Final Design
- Finish Bckpl Final Design
- Finish CCC Final Design
- Finish Sort Final Design

1/8/04

8/5/03
9/30/03
9/30/03
8/5/03
1/8/04



FY02-05 L2,3 Milestones - II

Begin Production

- Begin MPC Production 4/16/03
- Begin SR/SP Production 8/19/03
- Begin Bckpl Production 11/4/03
- Begin CCC Production 10/1/03
- Begin Sort Production 8/6/03

Finish Production

- Finish MPC Production 4/16/03
- Finish SR/SP Production 6/10/04
- Finish Bckpl Production 9/30/04
- Finish CCC Production 3/4/04
- Finish Sort Production 3/18/04

Begin Installation

- Begin MPC Installation 10/28/04
- Begin SR/SP Installation 11/5/04
- Begin Bckpl Installation 11/5/04
- Begin CCC Installation 11/5/04
- Begin Sort Installation 11/5/04

Finish Installation

- Finish MPC Installation 4/1/05
- Finish SR/SP Installation 4/1/05
- Finish Bckpl Installation 4/8/05
- Finish CCC Installation 4/8/05
- Finish Sort Installation 4/8/05



FY02-05 L2,3 Milestones - III

Begin Trigger System Tests

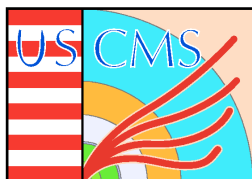
4/11/05

- Begin MPC System Tests 4/11/05
- Begin SR/SP System Tests 4/11/05
- Begin Bckpl System Tests 4/11/05
- Begin CCC System Tests 4/11/05
- Begin Sort System Tests 4/11/05

Finish Trigger System Tests

9/30/05

- Finish MPC System Tests 9/30/05
- Finish SR/SP System Tests 9/30/05
- Finish Bckpl System Tests 9/30/05
- Finish CCC System Tests 9/30/05
- Finish Sort System Tests 9/30/05



Trigger L2 Tasks

Tasks	start	finish:	
• Produce TDR	8/00	12/00	✓
• Design Final Prototypes	11/00	12/01	✓
• Construct Final Prototypes	6/01	6/02	
• Test/Integrate Final Prototypes	12/01	12/02	
• Pre-Production Design & Test	6/02	6/03	
• Production	12/02	6/04	
• Production Test	6/03	11/04	
• Trigger System Tests	5/04	5/05	
• "Slice Test" NEW	10/04	11/04	□
• Trigger Installation	11/04	11/05	□
• Integration & Test w/DAQ & FE	3/05	9/05	□
• Maintenance & Operations	10/04	-----	□

Expect Additional Delay of 3 months



Define Project Completion

Installation in Underground Counting Room

- Expect access in March '05
- Sufficient time for installation and some testing but not for completing commissioning with detectors

Slice Test

With both HCAL and EMU

Verify trigger functions and interfaces by testing with detectors on surface at CERN.

Suggest as substitute for commissioning completion step.

Will check as much on surface before gaining access to underground facilities.

Planned for October '04