L1TSW Timeline, By Task

The goal if this document is to centralize the discussion for when certain tasks relevant to the L1TSW development should be completed. All dates are in ISO 8601, All times in CET

**L1TSW Workshop**

* **Organization**
  + 2013-05-10, 14h: Marc/Homer Meet to discuss agenda and documents
  + 2013-05-13, 14h: Meet to discuss agenda and documents
* Agenda
  + 2013-05-13, 14h: All prospective speakers contacted
  + 2013-05-20: Schedule finalized
* Workshop
  + 2013-05-23: Workshop Begins
  + 2013-05-24: Workshop Concludes
  + 2013-05-25: Follow-Up Tasks Begin
* Other Meetings
  + 2013-06-04: Upgrade Meeting at DESY

**Major Milestones**

* CM1: 2014-07-01 oRSC/MP7 904 integration test
* Stage 1
  + 2013-06-31 Algorithms
  + 2013-07-31 Interface Documents
  + 2013-07-31 Emulators
  + 2013-09-01 Conditions
  + 2013-09-31 CMSSW Release
  + 2013-10-15 L1 Menu
* Stage 2
  + 2013-06-31 Algorithms
  + 2013-07-31 Interface Documents
  + 2013-07-31 Emulators
  + 2013-09-01 Conditions
  + 2013-09-31 CMSSW Release
  + 2013-10-15 L1 Menu
    - * CM2: 2013-09-01 TMT processing demonstration
* CM3: 2013-12-01 Stage-1 Commissioning In P5: oRSC and MP7+CMS DAQ/RC
* CM4: 2014-03-01 Stage-2 integration test: CTP7, MP7, in 904, local DAQ
* CM5: 2014-07-01 Stage-2 Integration test #2: Some final CTP7, MP7, CMS DAQ
* CM6: 2014-09-01 Stage-2 installation: Integration with DAQ and RC
* 2015-01-01 LHC Run II Data Taking Begins

**Interface Documents**

These should ideally be completed before integration testing

* 2013-07-01 Data Formats

**Data Formats**

* 2013-06-01 Agreement of common scales, data formats

**Packers, Unpackers**

* 2013-01-01 Skeleton of general packers/unpackers

**Toolkit**

* 201X-01-01 Lookup Tables Skeleton

**Operations Tools**

* 201X-01-01 uHAL Library, Control Hub, and IPBus Firmware (UDP)
* 201X-01-01 uHAL GUI for Hardware Development
* 201X-01-01 Integration of uHAL in online SVN
* 201X-01-01 Circuit boards Produced

**Networking**

* IP Address Assignment firmware and software
* MMC interface software using IPMI for power management
* 201X-01-01 Subsystem Integration tests in 904

**Configuration**

* O2O Migration to CMSSW 5 or 6
* O2O Adaptation to configuration as conditions
* Central cell changes for parallel running
* AMC13 configuration and monitoring
* uTTC configuration and monitoring
* uHAL GUI for Trigger Supervisor
* Common configuration database schema and library
* Common data format document and library
* Setup and validation of DQM modules at 904
* Library and document to generate input and output patterns
* L1 Configuration Editor improvements to deal with one-to-many relations
* Integration of configuration setups into XDAQ as a service
* Trigger supervisor integration in VCS
* L1 Page integration in VCS

**DQM**

* Migration of central DQM tools to new Framework
* Adapt ntuples to new framework
* Develop workflow for testing DQM system builds
* Develop Data Certification
* Develop Simulation Certification

**2015 L1 Upgrade MC Production**

* **Simulations**
  + 2013-07-01 All TDR simulations deposited in offline VCS
  + 2013-07-10 2015 L1 Upgrade simulation in production release
  + 2013-08-20 2015 L1 Upgrade simulation validated
  + 2013-09-01 MC Generation for HLT, Phase 2, Stage 2

**Common Emulator Modules**

* 2013-05-25 Requirement Specifications
* 2013-07-01 Documentation
* 2013-07-01 Basic structures in place in VCS

**Subsystem Specific Tasks**

* Emulator modules
* Scripts and tools for hardware development
* Software to automatically generate VHDL
* Abstractions for crate, board, and chip
* Configuration service and configuration database
* mTTC configuration and monitoring integration
* Packer, unpacker, and object reconstruction
* Test service and pattern generation utilities
* IPBus firmware for TCP/IP b
* PCIe hardware access firmware, kernel module, and mHAL extension c
* Integration of Subsystem Online Software Integration in a common SVN repository

**Calorimeter trigger**

* Emulator modules
* Scripts and tools for hardware development
* Software to automatically generate VHDL
* Configuration service and configuration database
* Packer, unpacker, and object reconstruction
* Integration of Subsystem Online Software Integration in a common VCS
* 2014-05-01 oSLB/oRM system commissioned and ready for data taking
* 2014-06-01 Hardware production completed
* 2014-11-01 Installation at P5 completed
* 2016-01-01 System commissioned and ready for data taking

**oRM**

* 2013-07-01 oSLB/oRM full crate test
* 2013-08-01 oRM Firmware Available
* Emulator modules
* Scripts and tools for hardware development
* Software to automatically generate VHDL
* Configuration service and configuration database
* Packer, unpacker, and object reconstruction
* Integration of Subsystem Online Software Integration in a common VCS
* **2014-05-01 oSLB/oRM system commissioned and ready for data taking**

**oSLB**

* 2013-05-08 Firmware fully ported/modified to VHDL
* 2013-05-08 oSLB GUI and oSLB Tester GUI created
* 2013-05-08 Software Ready for 904 Tests
* Emulator modules
* Scripts and tools for hardware development
* Software to automatically generate VHDL
* Configuration service and configuration database
* Packer, unpacker, and object reconstruction
* Integration of Subsystem Online Software Integration in a common VCS
* **2014-05-01 oSLB/oRM system commissioned and ready for data taking**

**Global Trigger**

* Emulator modules
* Scripts and tools for hardware development
* Software to automatically generate VHDL
* Configuration service and configuration database
* Packer, unpacker, and object reconstruction
* Integration of Subsystem Online Software Integration in a common VCS
* 2014-01-01 System design review: Initial Trigger Menu software and firmware system complete
* 2014-07-01 Final hardware integration test
* 2014-11-01 Installation at P5 completed
* 2015-05-01 System commissioned and ready for data taking

**Layer 2 Calorimeter Trigger (+ GCT)**

**Layer 1 Calorimeter Trigger (+ RCT)**

* Emulator modules
* Scripts and tools for hardware development
* Software to automatically generate VHDL
* Configuration service and configuration database
* Packer, unpacker, and object reconstruction
* Integration of Subsystem Online Software Integration in a common VCS
* 2013-07-01 Installation readiness review for oSLB and oRM
* 2013-09-01 Time Multiplexed Processing demonstration
* 2014-03-01 Layer 1 and layer 2 integration test at CERN
* 2014-07-01 Final hardware integration test
* 2014-09-01 Installation readiness review

**Muon Trigger**

* **Endcap Muon Trigger**
  + Emulator modules
  + Scripts and tools for hardware development
  + Software to automatically generate VHDL
  + Configuration service and configuration database
  + Packer, unpacker, and object reconstruction
  + Integration of Subsystem Online Software Integration in a common VCS
  + 2014-10-01 MPC Mezzanine System commissioned and ready for data taking
  + 2014-11-01 Hardware production completed
  + 2015-01-01 Installation at P5 completed
  + 2016-02-01 System commissioned and ready for data taking
* **Barrel Muon Trigger**
  + Emulator modules
  + Scripts and tools for hardware development
  + Software to automatically generate VHDL
  + Configuration service and configuration database
  + Packer, unpacker, and object reconstruction
  + Integration of Subsystem Online Software Integration in a common VCS
  + 2015-08-01 DT Link swap Engineering Change Review
  + 2015-03-01 Installation at P5 complete
  + 2016-02-01 System commissioned and ready for data taking
* **Overlap Muon Trigger**
  + Emulator modules
  + Scripts and tools for hardware development
  + Software to automatically generate VHDL
  + Configuration service and configuration database
  + Packer, unpacker, and object reconstruction
  + Integration of Subsystem Online Software Integration in a common VCS
  + 2015-05-01 Installation at P5 completed
  + 2016-01-01 RPC fan out commissioned and ready for data taking
  + 2016-02-01 System commissioned and ready for data taking
* **Global Muon Trigger**
  + Emulator modules
  + Scripts and tools for hardware development
  + Software to automatically generate VHDL
  + Configuration service and configuration database
  + Packer, unpacker, and object reconstruction
  + Integration of Subsystem Online Software Integration in a common VCS
  + 2014-01-01 Initial algorithms complete
  + 2014-11-01 Installation at P5 completed
  + 2015-10-01 System commissioned and ready for data taking

**Trigger Control and Clock Distribution**

* 2013-09-01 Integration test with legacy GT system completed
* 2013-11-01 Electronics System Review
* 2014-01-01 Installation Readiness Review
* 2014-06-01 System commissioned and ready for data taking

**Integration Tests**

* 2014-03-01 Calo Layer 1 and Layer 2 integration test completed
* 2014-05-01 Calo and GMT integration test completed
* 2014-06-01 Calo, GMT and GT integration test completed
* 2014-07-01 ECAL, HCAL, Calo, GMT and GT integration test completed
* 2014-09-01 Endcap TF, GMT and GT integration test completed
* 2014-11-01 Barrel TF, GMT and GT integration test completed
* 2014-12-01 Endcap TF, CSC MPC and RPC fan out integration test completed
* 2015-01-01 Overlap TF, GMT and GT integration test completed
* 2015-02-01 Barrel TF, DT Twin Mux and RPC fan out integration test completed
* 2015-04-01 Overlap TF, CSC MPC, RPC fan out and DT Twin Mux integration test completed

**External**

* AMC13 Front End Software
* TTC
* WBM
* Lumi SW
* DAQ SW
* HLT
* Reconstruction, Offline, Analysis

Tools and Services

* LUT uploaders, GUIs for shifters
* VHDL
* Online configuration: SOAP
* Online Monitoring and Alarms
* Online Testing
* Emulators
* Online DQM
* Offline DQM
* Data Analysis Tools