

# Plans with MARLIN and TPC

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- Overview
- Status
- Plans

# Overview

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As might be known:

**M**odular **A**nalysis & **R**econstruction for the **L I N**ear Collider

➤ Main purpose: facilitate the modular development of reconstruction and analysis code based on LCIO

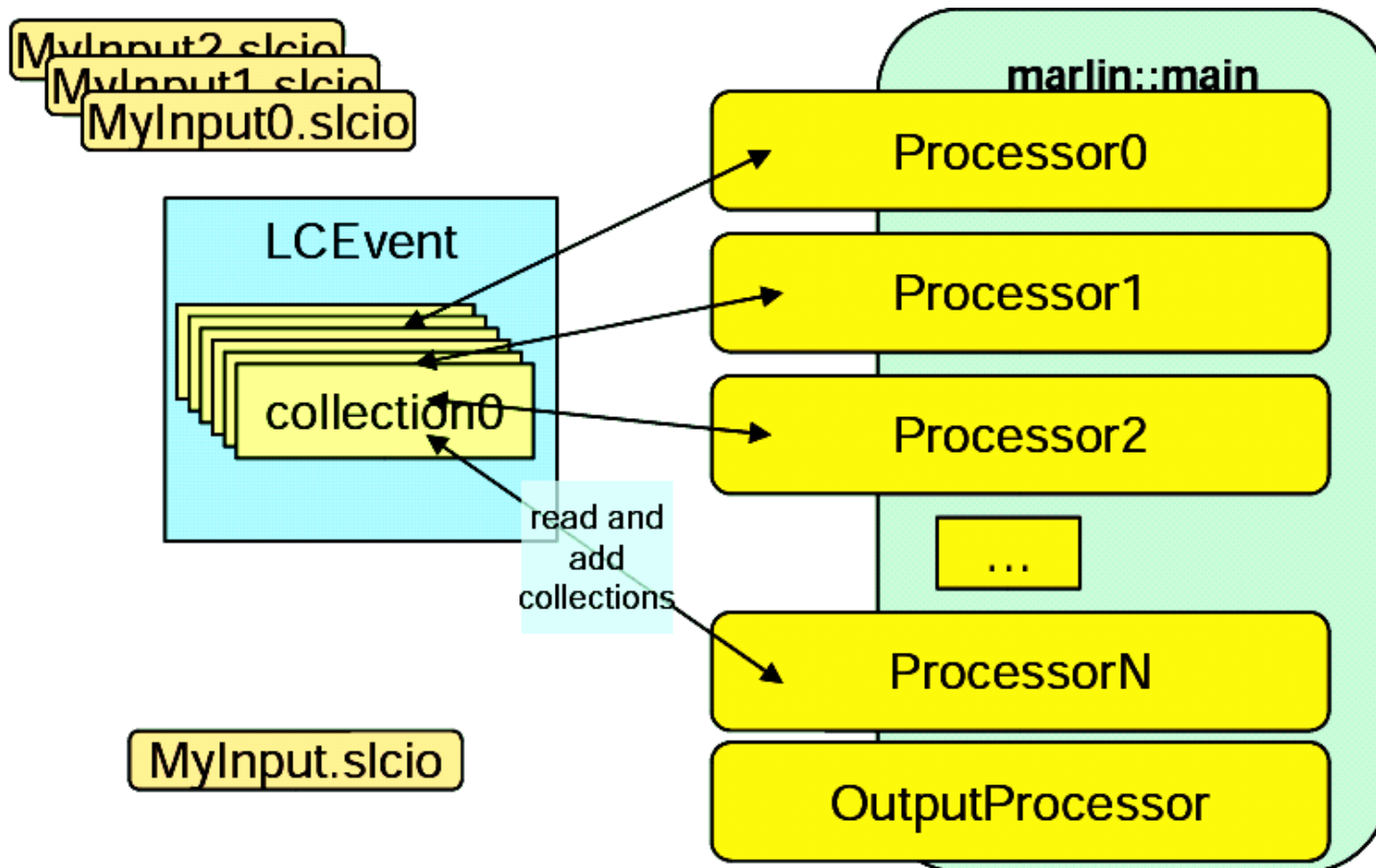
# Overview

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- Motivation: coordinate the work of many different groups, working on the same topic
- Have distributed development of modules and combine existing modules as needed in a larger application
- Modules in form of **Processors**
- Steering file mechanism allows to activate the needed processors

# Overview

No need to write a main program since it is provided by Marlin



# Status For MarlinTPC

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Proposal for an ILC TPC data stream:

Due to all different readout structures, electronics, amplification systems, etc. used by ILC TPC groups, a common framework needs to be highly modular, such that only a small part of code needs to be adapted for different setups.

# Status For MarlinTPC

- Proposal of conventions to make sure that certain classes always store data using same units, same coordinate system, etc., in order to avoid confusions during the exchange of data.

- ◆ LCIO classes
- ◆ Marlin Processors
- ◆ Helper classes for LCCD storage

# Status For MarlinTPC

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All processors should make use of consistent set of parameters through

GEAR

LCCD

# Status For MarlinTPC

**GE**ometry **A**PI for **R**econstruction

Stores static information, such as pad geometry, readout frequency, etc.

**L**inear **C**ollider **C**onditions **D**ata Toolkit

Saves conditions data which can change during data taking, such as drift velocity, voltages, B-field, calibration constants, metrological data, etc.



# Status For MarlinTPC

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Several processors already started:

Analysis:

xPedestalCalculator (makes use of DBEntryMaker and DBWriter)

# Status For MarlinTPC

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Several processors already started:

Reconstruction:

- x PedestalHandler
- x PedestalSubtractor
- x PulseFinder
- x TrackerRawDataToDataConverter

# Status For MarlinTPC

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Several processors already started:

Not yet up to date !

# Marlin GUI

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Graphical user interface that allows you to interactively create or repair Marlin XML steering files

Automatic consistency-checking feature that allows you to constantly and instantly check if the steering file contains errors

# Marlin GUI

List of all Collections Found in LCIO Files

Name	Type	LC
LumiCalS_LumiCal	SimCalorimeterHit	zpole1.slcio
MCParticle	MCParticle	zpole1.slcio
SEcal01_EcalBarrel	SimCalorimeterHit	zpole1.slcio
SEcal01_EcalEndcap	SimCalorimeterHit	zpole1.slcio
SHcal01_HcalBarrelEnd	SimCalorimeterHit	zpole1.slcio
SHcal01_HcalBarrelReg	SimCalorimeterHit	zpole1.slcio
SHcal01_HcalEndCaps	SimCalorimeterHit	zpole1.slcio
STpc01_FCH	SimTrackerHit	zpole1.slcio

View Options

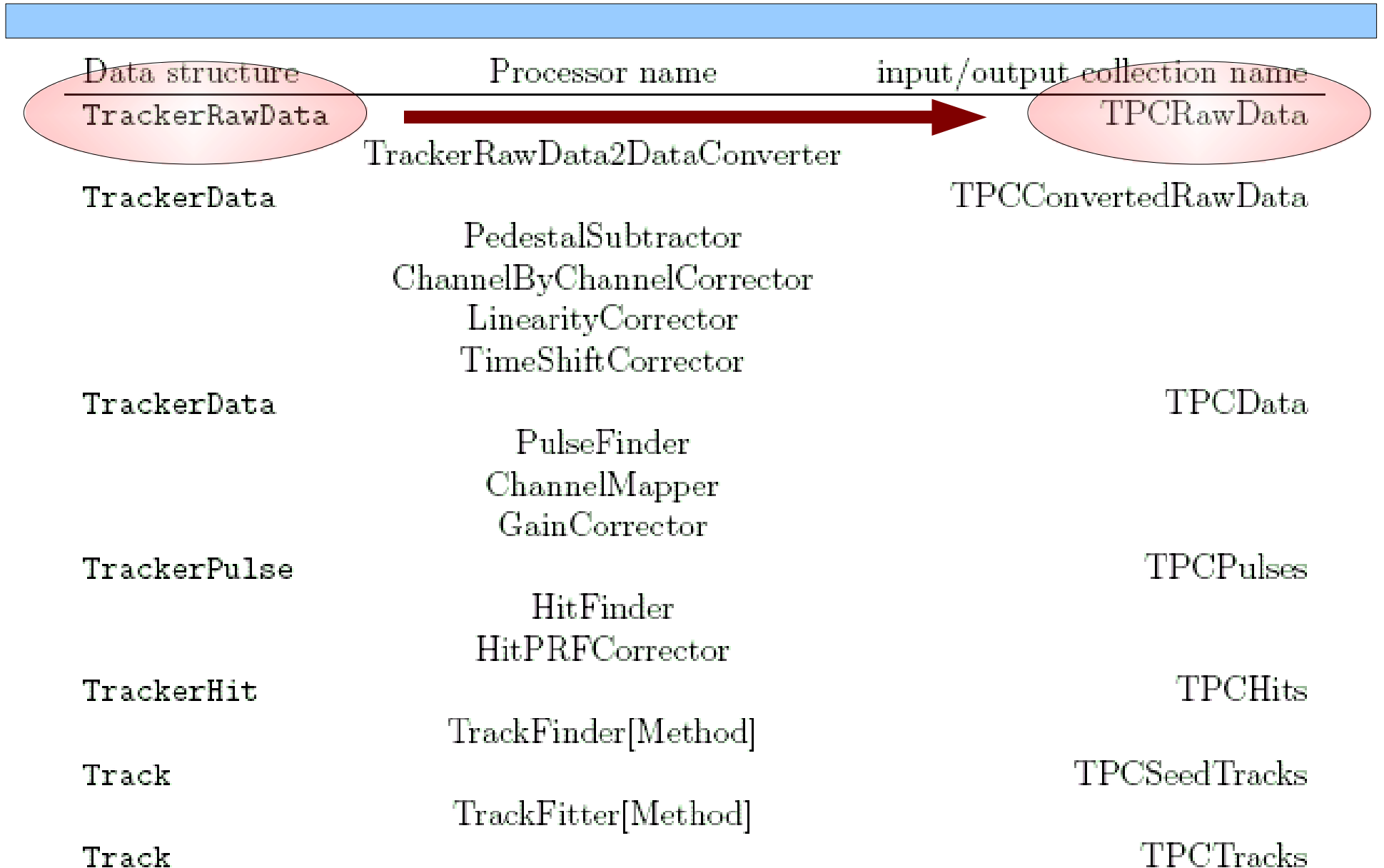
# Plans

Data structure	Processor name	input/output collection name
TrackerRawData	TrackerRawData2DataConverter	TPCRawData
TrackerData	PedestalSubtractor ChannelByChannelCorrector LinearityCorrector TimeShiftCorrector	TPCConvertedRawData
TrackerData	PulseFinder ChannelMapper GainCorrector	TPCData
TrackerPulse	HitFinder HitPRFCorrector	TPCPulses
TrackerHit	TrackFinder[Method]	TPCHits
Track	TrackFitter[Method]	TPCSeedTracks
Track		TPCTracks

# Plans

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# Plans





# Plans

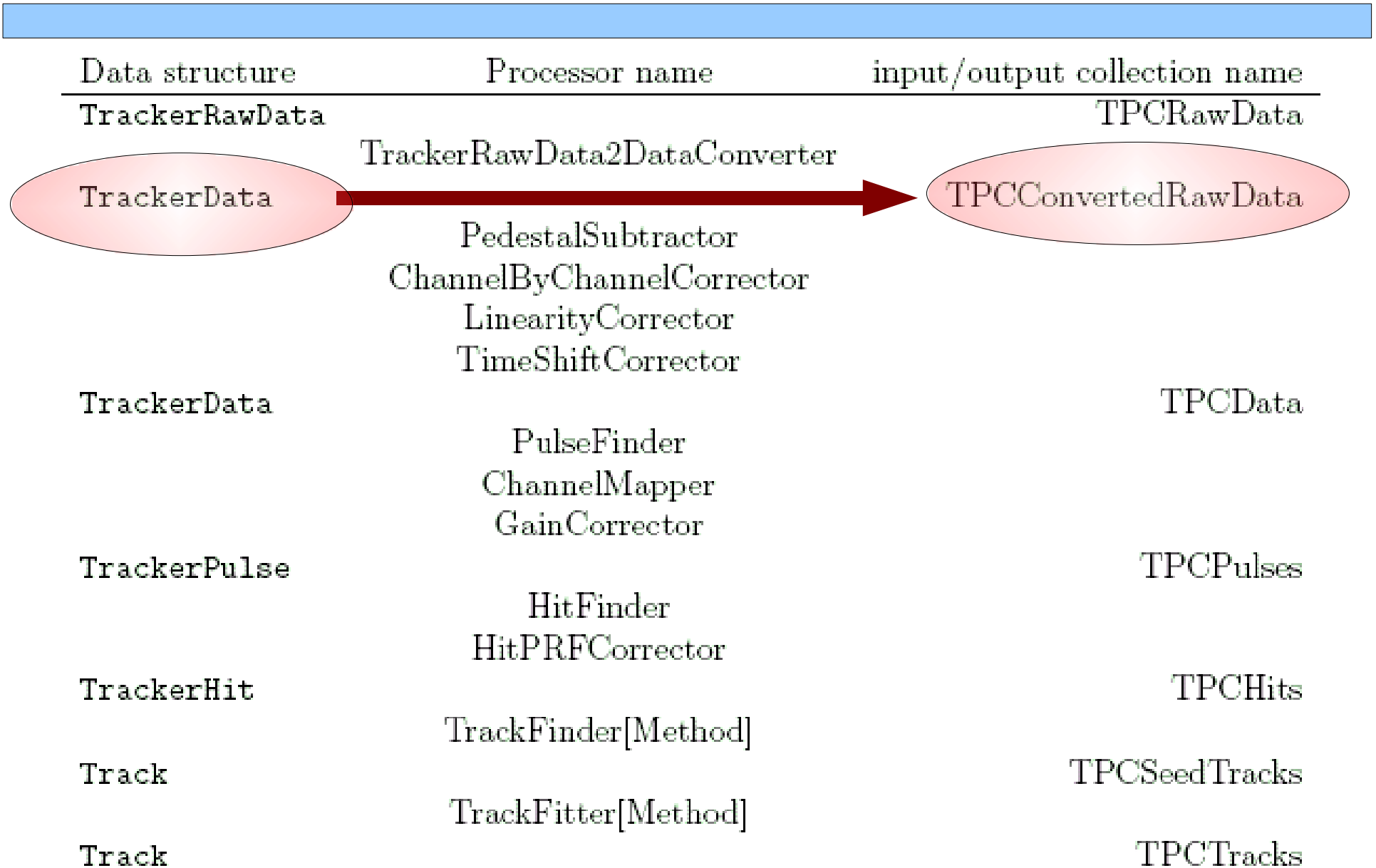
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# Plans

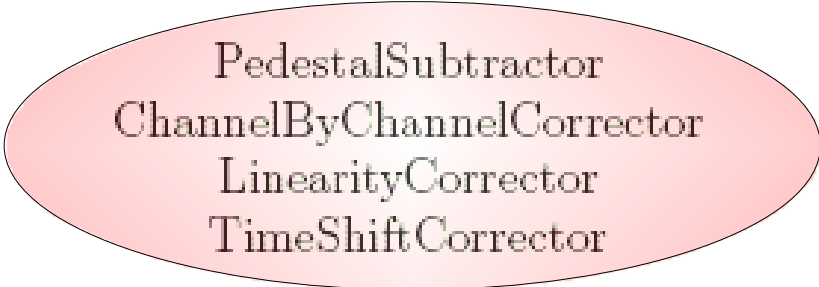



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# Plans



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TrackerHit	<ul style="list-style-type: none"> <li>■ TrackFinder[Method]</li> </ul>	TPCHits
Track	<ul style="list-style-type: none"> <li>■ TrackFitter[Method]</li> </ul>	TPCSeedTracks
Track		TPCTracks

# Plans

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Transfer of 'MultiFit' experiences into MARLIN

- implement modules according to proposed data flow list
- implement MC as processor (?)

Time frame: have MARLIN-processors ready when Large Prototype tests are starting



Need of manpower:

who wants to work  
on which module ?