



ALFA and AliceO2 status

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1

Just a reminder



Status ALFA

- FairMQ
- DDS
- Parameter management
-



FaiMQ:

New API for user mains and devices

- Much easier to create and connect user devices
- Hide most of the details of state machine from normal user

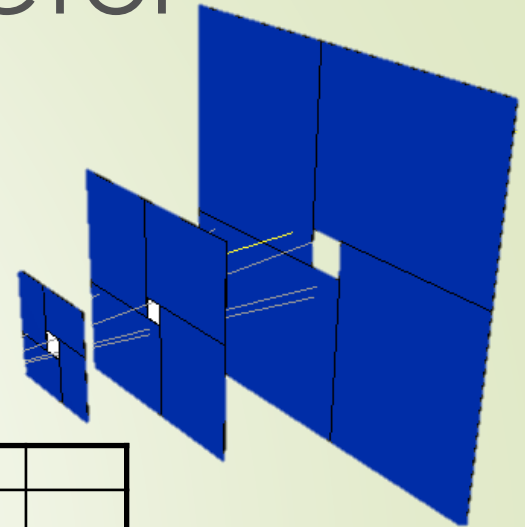
Details in Alexey's talk

FaiMQ: New example

FairRoot/Examples/MQ/9-PixelDetector

- Detector simulation,
- Digitization,
- reconstruction (hit finding, tracking, track fitting),
- Shows how to switch from root single-core processing to FairMQ multi-core pipeline processing.

fairroot/examples/MQ/9-PixelDetector



- 3 stations with 4 rectangular sensor each:
 - size: 5x 5cm², inner hole: 1x1cm², at z = 5cm;
 - size: 10x10cm², inner hole: 1x1cm², at z = 10cm;
 - size: 20x20cm², inner hole: 2x2cm², at z = 20cm;

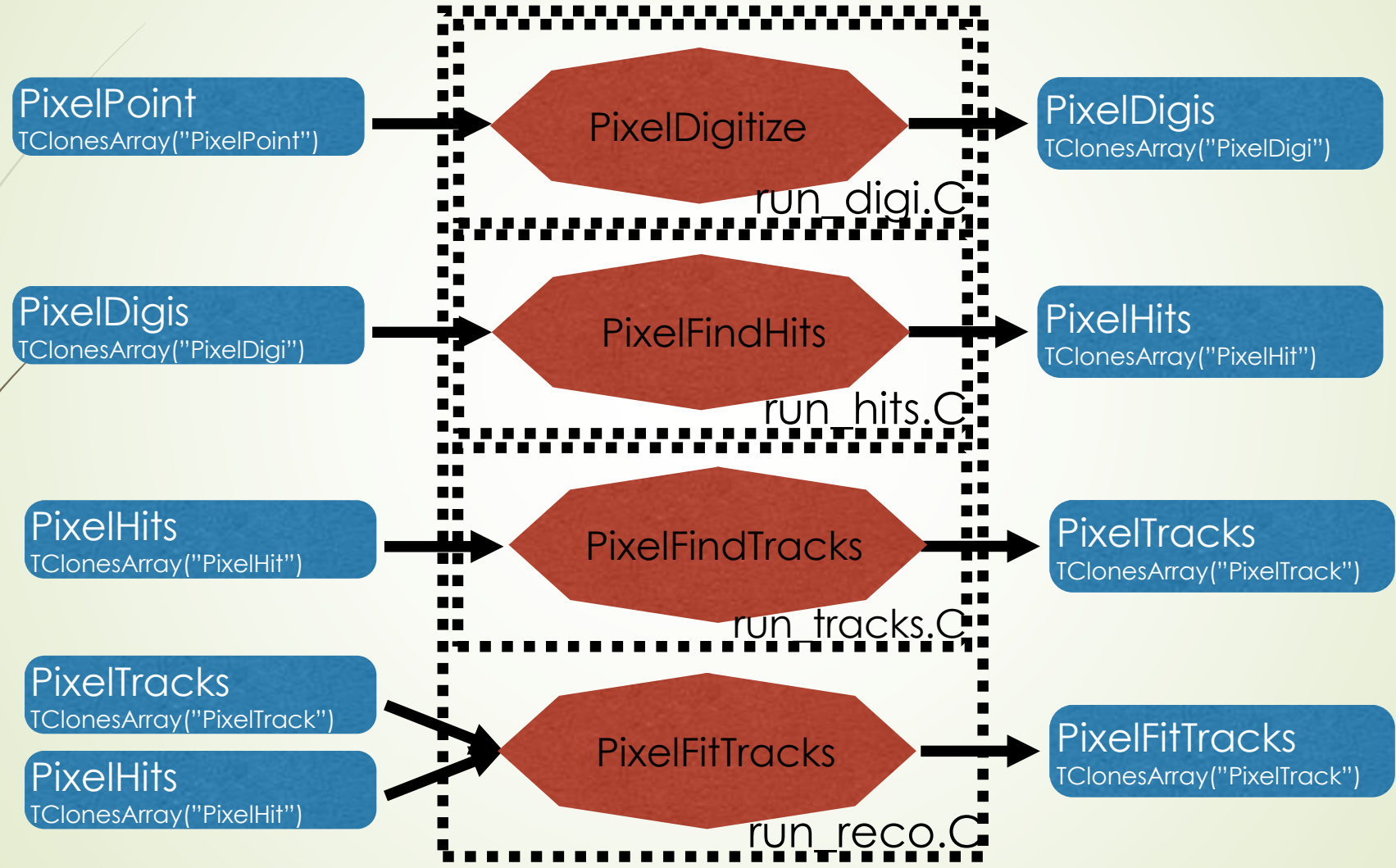
- each sensor divided into pixels (0.01x0.01cm²), that are grouped into FE modules (110 pixels x 116 pixels)

FEs numbering on one sensor

...					
FE 5	...				
FE 4	FE 68	...			
FE 3	FE 67	FE 131	...		
FE 2	FE 66	FE 130	FE 194	...	
FE 1	FE 65	FE 129	FE 193	FE 257	...

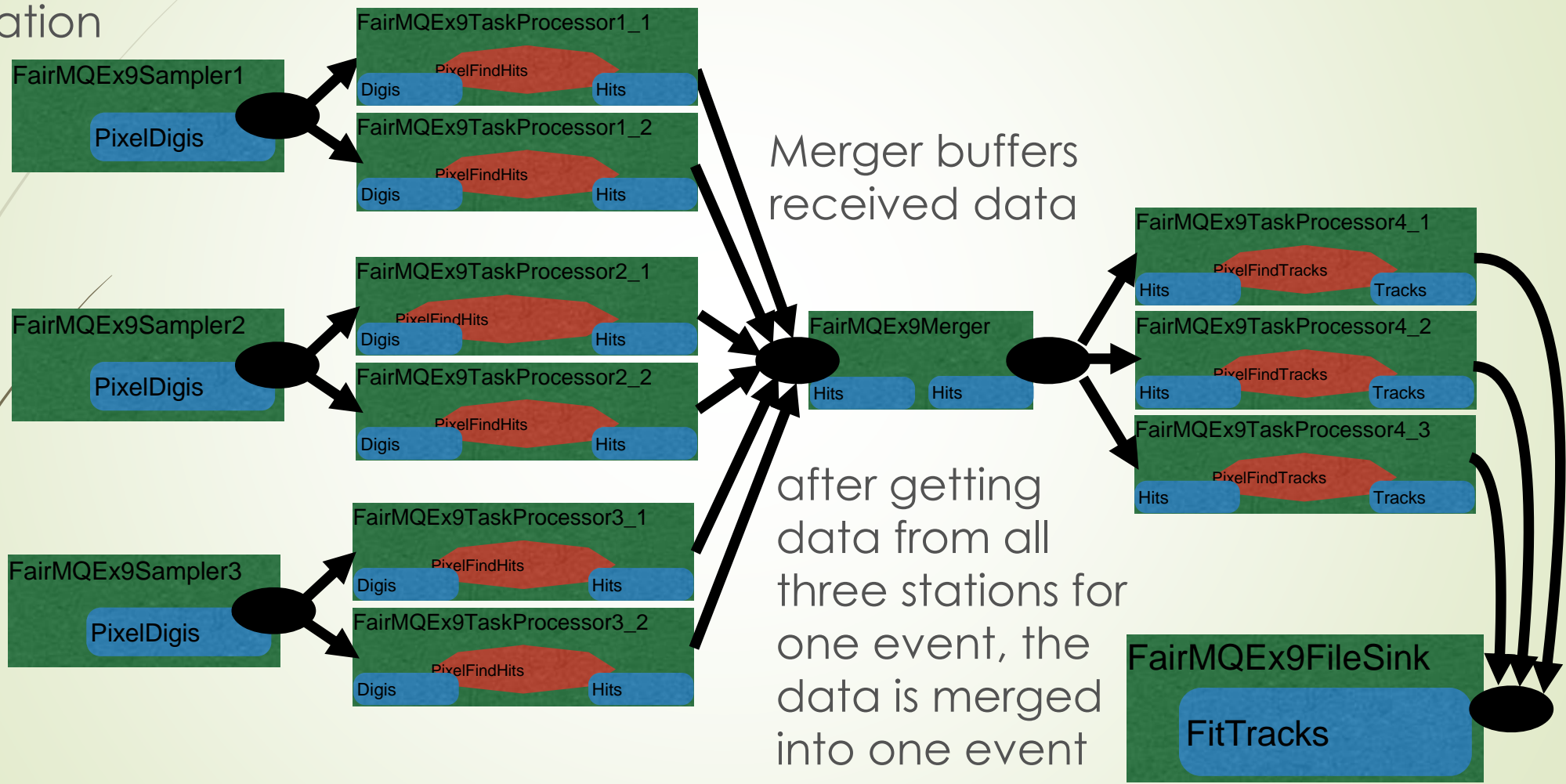
```
[INFO ]----- Pixel Digitizer : Summary -----
[INFO ] Events: 100000
[INFO ] MC Points: 944127 ( 9.44127 per event )
[INFO ] Digis: 940281 ( 9.40281 per event )
[INFO ]-----
[INFO ]----- Pixel Hit Finder : Summary -----
[INFO ] Events: 100000 [INFO ] Digis: 940281 (
9.40281 per event )
[INFO ] Hits: 940281 ( 9.40281 per event )
[INFO ]-----
[INFO ]----- Pixel Track Finder : Summary -----
[INFO ] Events: 100000 [INFO ] Hits: 940281 (
9.40281 per event )
[INFO ] Tracks: 281431 ( 2.81431 per event )
[INFO ]-----
[INFO ]----- Pixel Track Fitter : Summary -----
[INFO ] Events: 100000
[INFO ] Tracks: 281431 ( 2.81431 per event )
[INFO ] Fitted Tracks: 281431 ( 2.81431 per event )
[INFO ]-----
```

data classes, tasks and macros



Example topology

Each sampler reads from file with data from one station

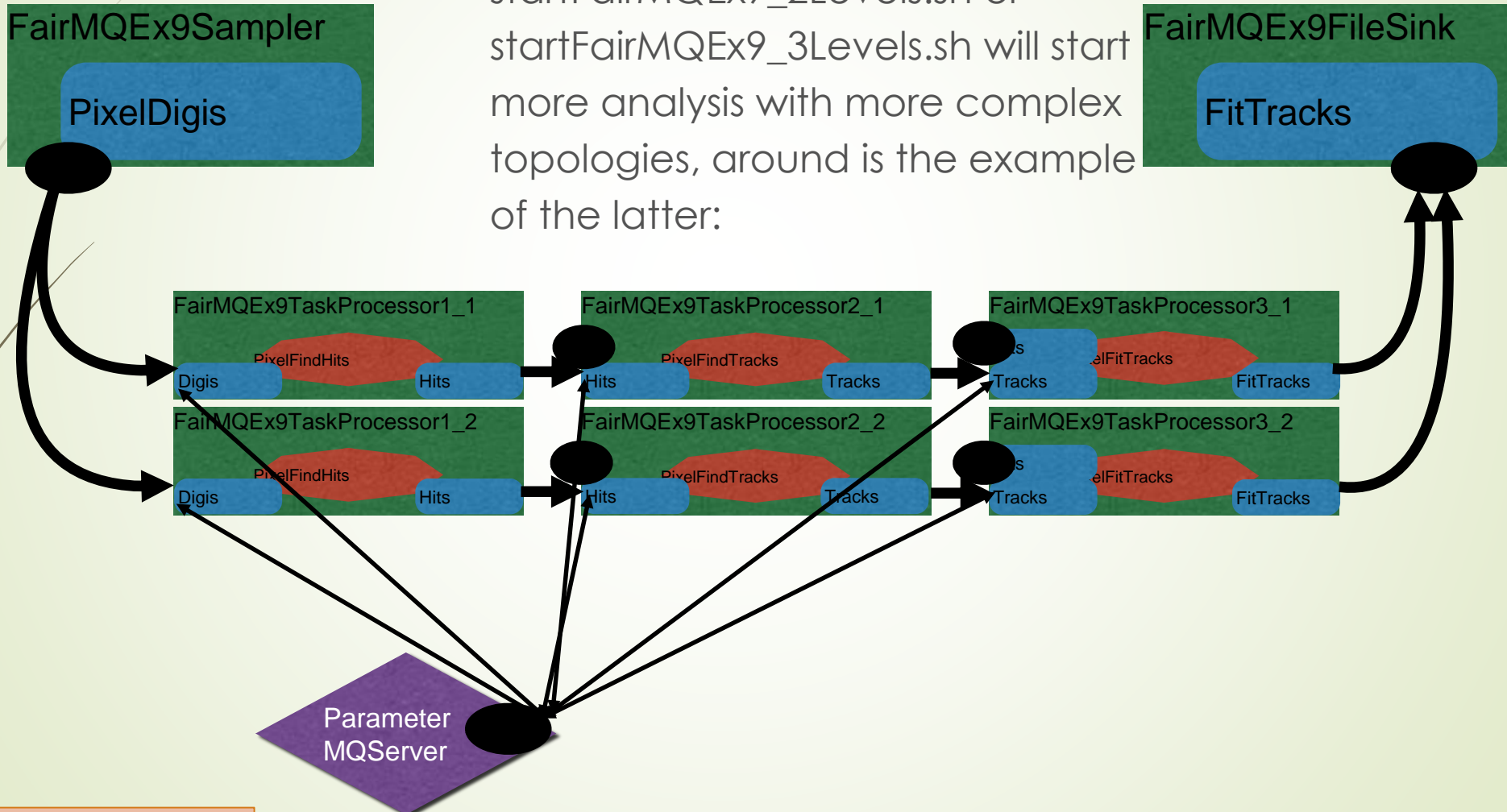


Merger buffers received data

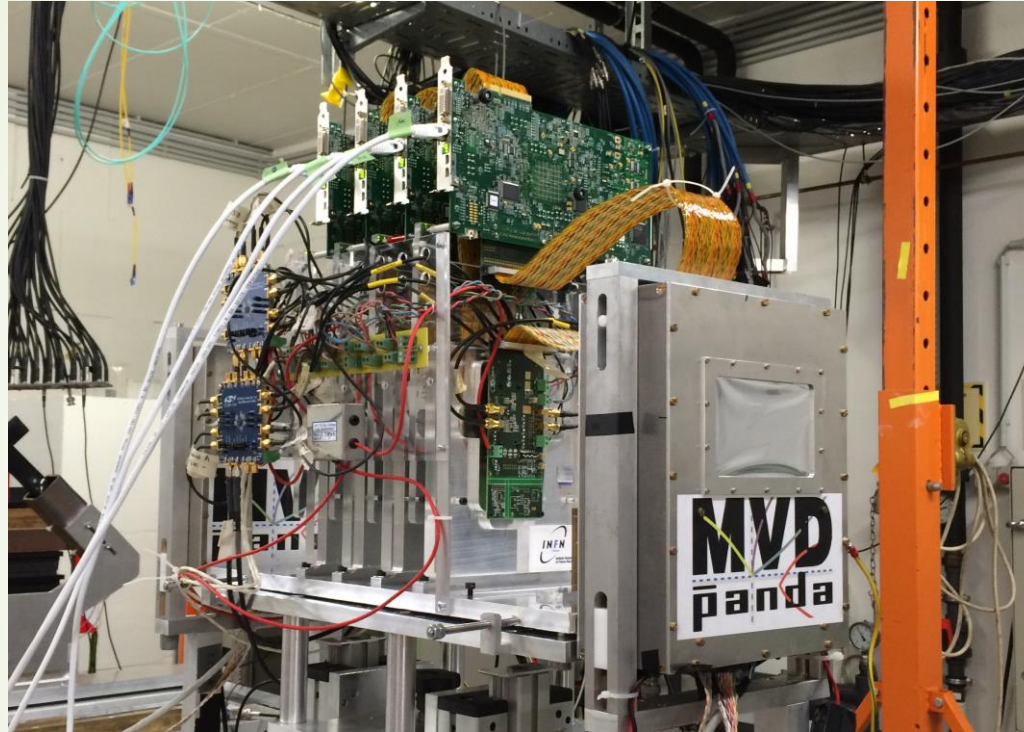
after getting data from all three stations for one event, the data is merged into one event and sent

Other topologies:

- startFairMQEx9_2Levels.sh or startFairMQEx9_3Levels.sh will start more analysis with more complex topologies, around is the example of the latter:

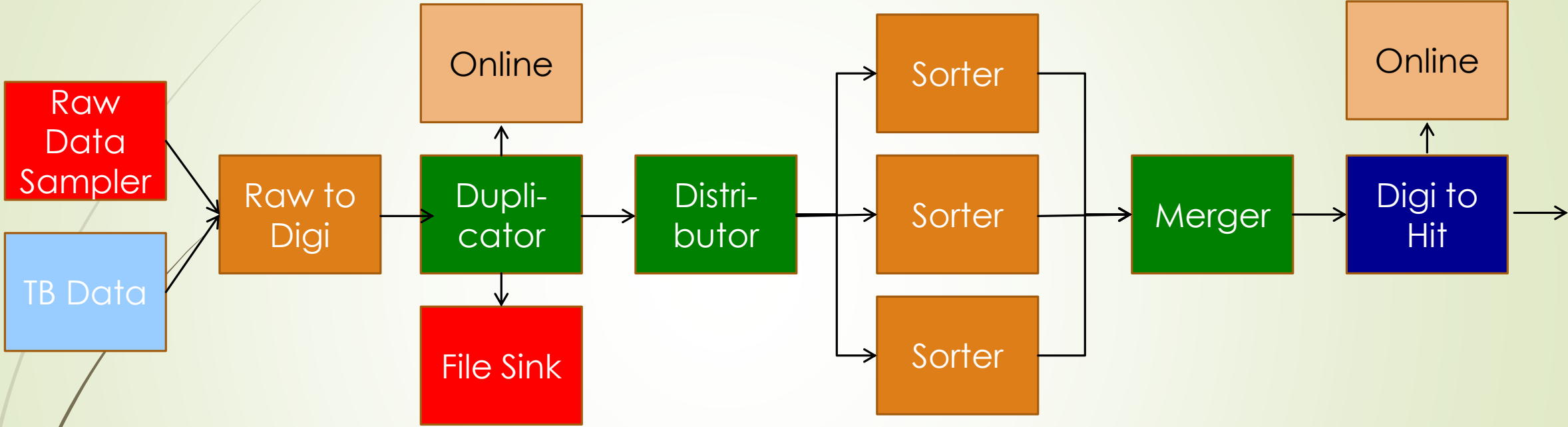


Test of FairMQ with Real Data



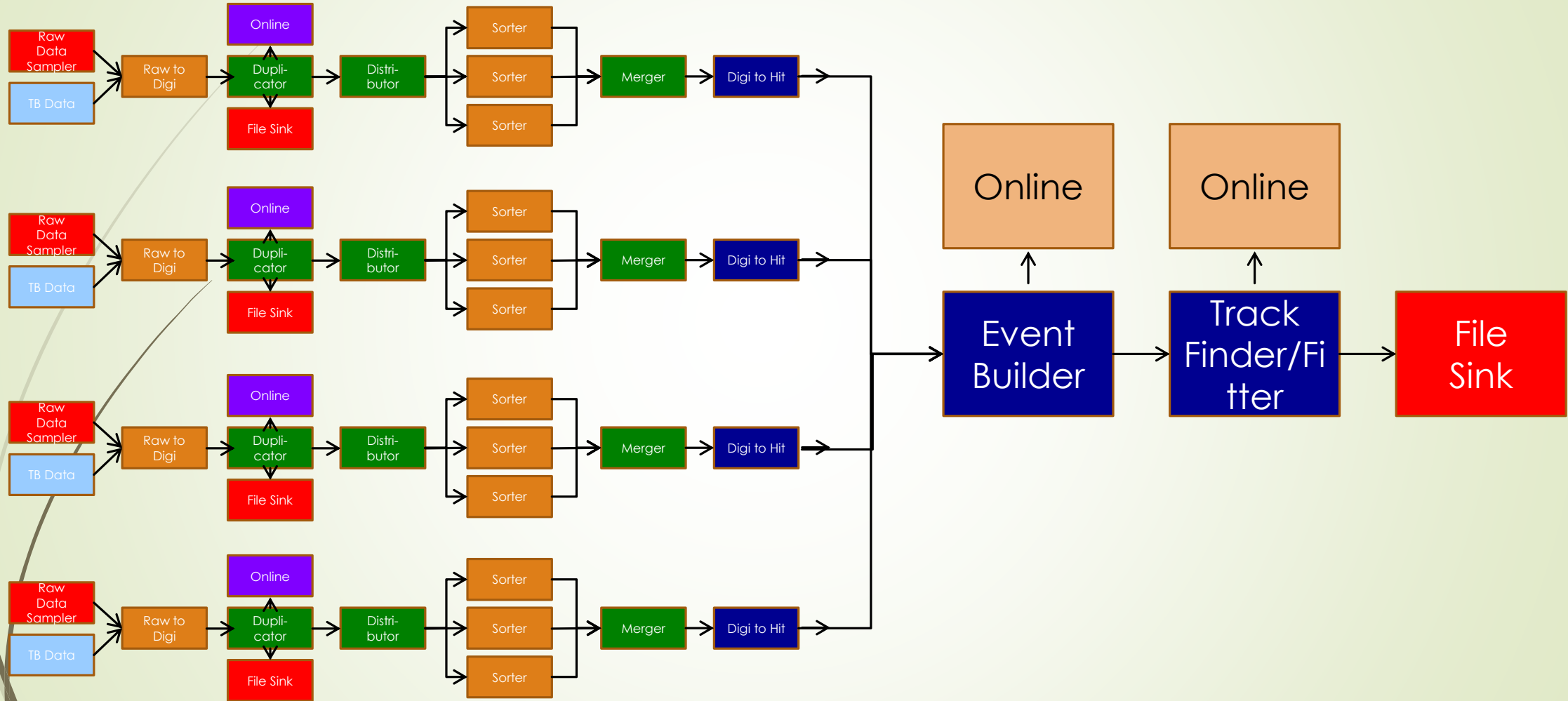
- Parallel readout of 4 pixel detectors
- Readout done by 4 FPGA boards sending their data to two PCs
- On the PC bitstream converted into raw data
- Raw data send via FairMQ to a FileSink

Single Front-End

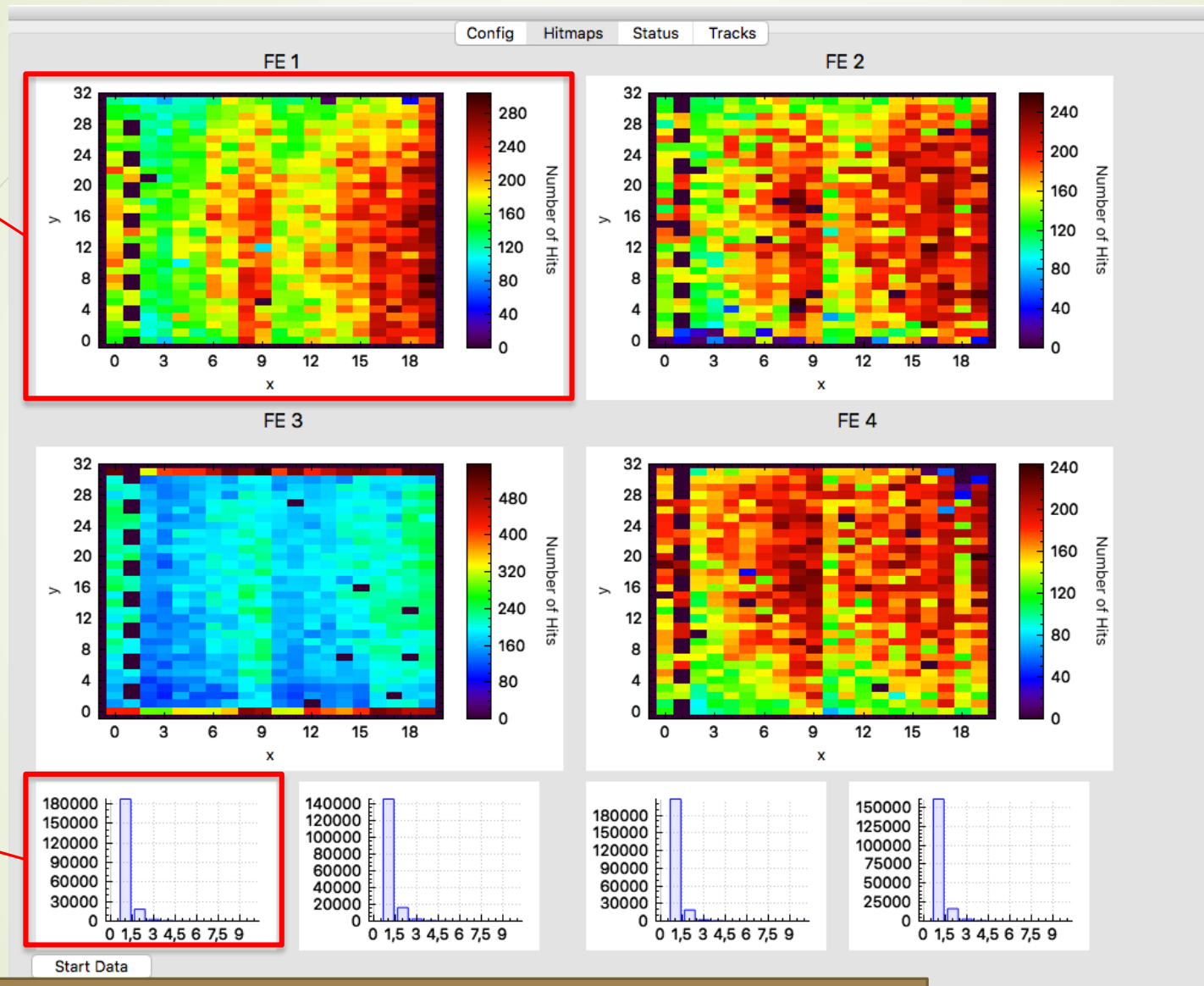


 File handling	 Data processing
 Data handling	 Online monitoring

Multiple Front-Ends



Hitmap



Cluster finder

- Running on 6 PC
 - 4 for each FE
 - 1 for tracking
 - 1 for control

DDS:

Highlights since last meeting

- Shared memory communication.
- New dds-intercom library API.
- Versioning in key-value propagation.
- Runtime topology update.
- LSF and PBS plugins.
- dds-octopus: test DDS using DDS.
- ... many more other fixes and stability improvements

more details here: <https://github.com/FairRootGroup/DDS/blob/master/ReleaseNotes.md>

Details in Andrey's talk

Parameter manager for ALFA

15



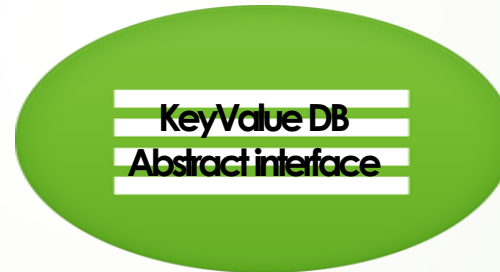
ROOT



ROOT



ASCII



RAMCloud

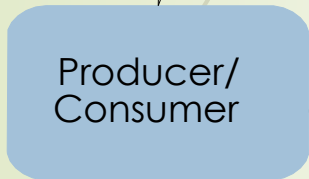
Parameter Management Module: System design

Components of the Parameter Manager:

Data loading

Serialization

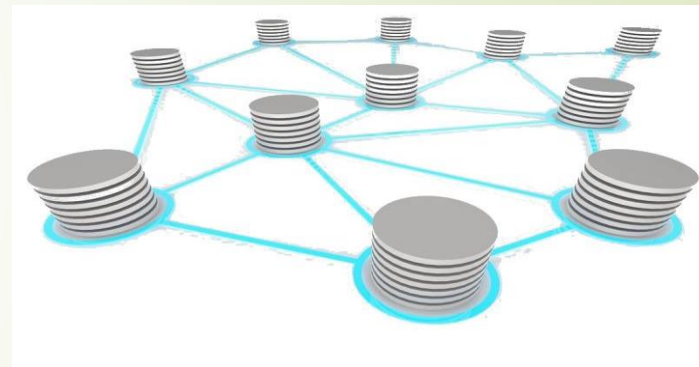
DB communication



C++



RAMCloud



C++ repository: <https://github.com/AliceO2Group/KeyValueClusterPerf>
 Java repository: <https://github.com/AliceO2Group/RiakJavaC>

Status AliceO2

- ▶ Organizing the directory structure in the repository is done
 - ▶ See discussions in CWG13 meeting
[https://indico.cern.ch/event/521460/\)CWG13](https://indico.cern.ch/event/521460/)CWG13)
- ▶ Modular build is done (Exclude G3/4 and event generators)

Status AliceO2: Tests and Quality assurance

- ▶ Some functional test are there (10 of them) and integrated with Ctest and Dashboards tests
- ▶ Test are run nightly and in the continuous build
- ▶ Coverage test is also available
- ▶ Test can monitor certain values (User defined) as function of commits (CPU time, Memory, etc..)

19

Test: run_tutorial4_TGeant4 (Passed)
Build: Wheezy64-linux-x86_64-gcc4.7-fairroot_dev-fairsoft_mar15 (lxbuid04.gsi.de) on 2016-11-04 00:10:10
Repository revision: 539b076b38bedf6760f0bf9d11aa001f401d52e5
Test Details: Completed

Test Timing: Passed
MaxMemory 120.043
CpuLoad 0.957871
Pass Reason] Required regular expression found.Regex=[Macro finished successfully]

Show Command Line

Display graphs
 ✓ Select...
 Test Time
 Failing/Passing
 MaxMemory
 CpuLoad

Test output

```

*****
*
*      W E L C O M E  t o  R O O T
*
*   Version   5.34/25   12 January 2015
*
*   You are welcome to visit our Web site
*       http://root.cern.ch
*
*****

ROOT 5.34/25 (v5-34-25@v5-34-25, Jun 19 2015, 09:02:45 on linuxx8664gcc)

CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.

Processing /home/uhlig/FairRoot/NIGHTLY/FairRoot/examples/simulation/Tutorial4/macros/run_tutorial4.C(10,"TGeant4")...
[INFO  ] FairRootManager::OpenOutFile("testrun_TGeant4.root")
[INFO  ] Media file used: /home/uhlig/FairRoot/NIGHTLY/FairRoot/examples/common/geometry/media.geo
[INFO  ] ===== FairRunSim: Initialising simula...
The rest of the test output was removed since it exceeds the threshold of 1024 bytes.
  
```



✓ Select...

Test Time

Failing/Passing

MaxMemory

CpuLoad

Test: run_tutorial4_TGeant4 (Passed)

Build: Wheezy64-linux-x86_64-gcc4.7-fairroot_dev-fairsoft_mar15 (lxbuid04.gsi.de) on 2015-11-03 00:10:09

Repository revision: 8444ac5081cf77ef7ff867e516e69f11fe5a0ce1

Test Details: Completed

Test Timing: Passed

MaxMemory 110.039

CpuLoad 0.830432

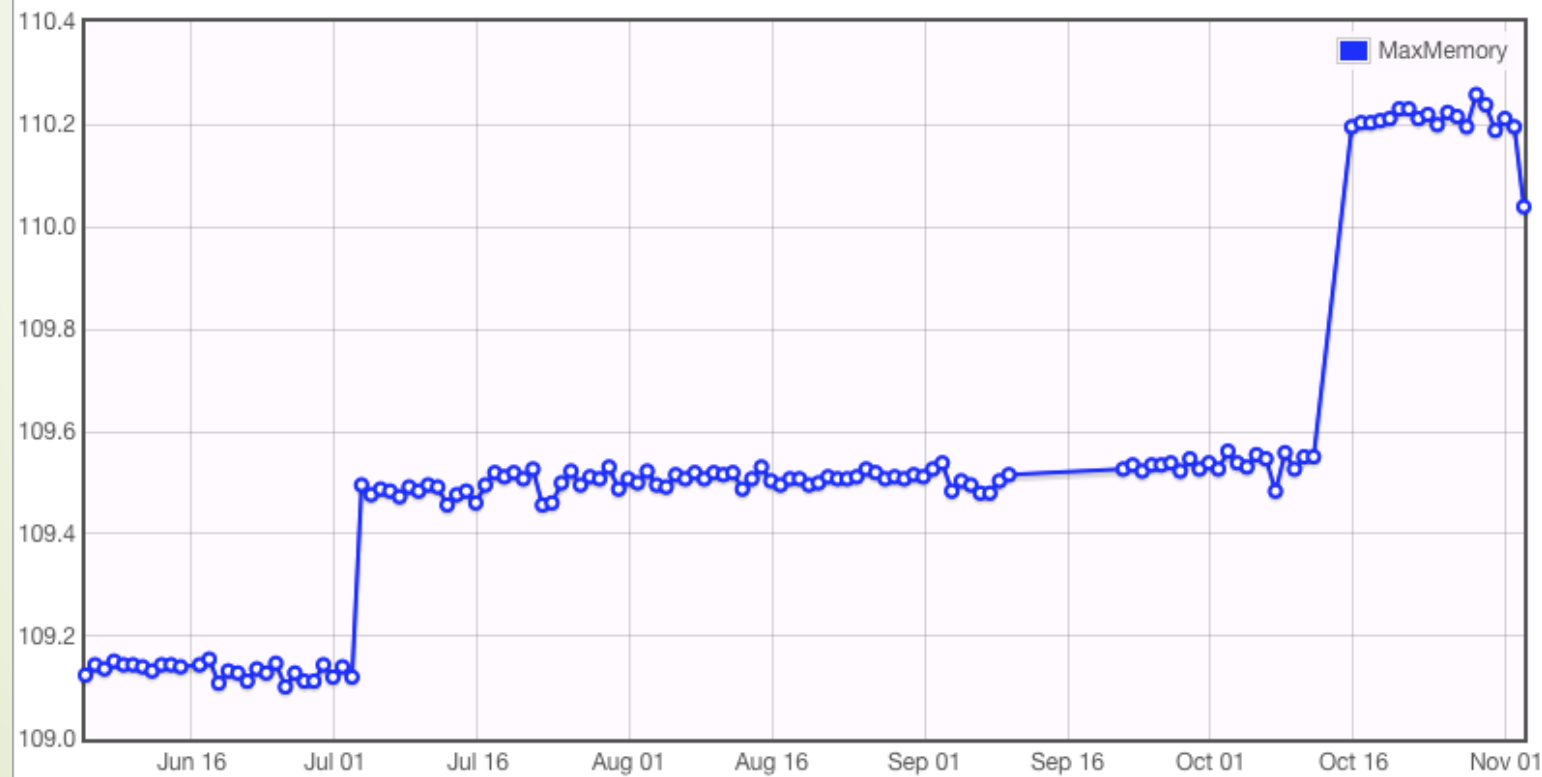
Pass Reason Required regular expression found.Regex=[Macro finished successfully
]

Show Command Line

Display graphs: MaxMemory

Zoom out

Export as CSV File



Test: run_tutorial4_TGeant4 (Passed)
Build: Wheezy64-linux-x86_64-gcc4.7-fairroot_dev-fairsoft_mar15 (lxbuid04.gsi.de) on 2015-11-03 00:10:09
Repository revision: 8444ac5081cf77ef7ff867e516e69f11fe5a0ce1
Test Details: Completed

Test Timing: Passed

MaxMemory 110.039

CpuLoad 0.830432

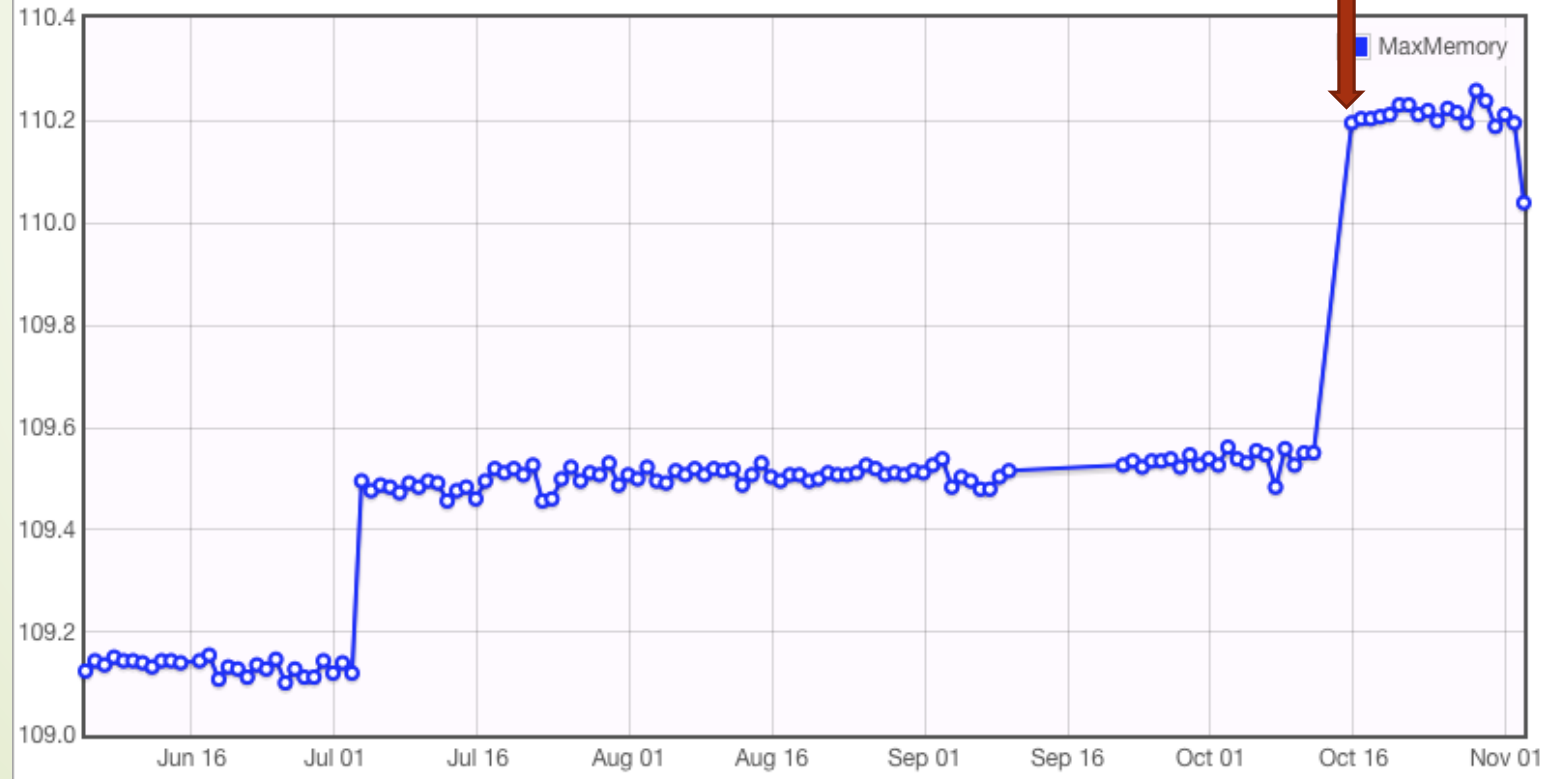
Pass Reason Required regular expression found.Regex=[Macro finished successfully]

Show Command Line

Display graphs: MaxMemory

Zoom out

Export as CSV File



cdash.gsi.de

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FairRoot

Dashboard Back Calendar Previous Current Next Project

Test: run_tutorial4_TGeant4 (Passed) 🕒 3.55s

Build: Wheezy64-linux-x86_64-gcc4.7-fairroot_dev-fairsoft_mar15 (lxbuid04.gsi.de) on 2015-10-16 00:10:09

Repository revision: [85b3118a32f2318d3ea06dd694c473818019d5e9](https://github.com/FairRootGroup/FairRoot/commits/85b3118a32f2318d3ea06dd694c473818019d5e9)

Test Details: Completed

Test Timing: Passed

MaxMemory: 110.195

CpuLoad: 0.976534

Pass Reason: Required regular expression found.Regex=[Macro finished successfully]

Show Command Line

Display graphs:

Test output

```



*****
*
*           W E L C O M E  t o  R O O T           *
*
*   Version   5.34/25   12 January 2015   *
*
*   You are welcome to visit our Web site *
*           http://root.cern.ch           *
*
*****

ROOT 5.34/25 (v5-34-25@v5-34-25, Jun 19 2015, 09:02:45 on linuxx8664gcc)

CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.

Processing /home/uhlig/FairRoot/NIGHTLY/FairRoot/example/Tutorial4/macros/run_tutorial4.C(10,"TGeant4")...
[INFO ] FairRootManager::OpenOutFile("testrun_TGeant4.root")
[INFO ] Media file used: /home/uhlig/FairRoot/NIGHTLY/FairRoot/example/geometry/media.geo
[INFO ] ===== FairRunSim: Initialising simulation run =====...
The rest of the test output was removed since it exceeds the threshold of 1024 bytes.

```

  CDash 2.3.0 © Kitware | Report problems

Open "https://github.com/FairRootGroup/FairRoot/commits/85b3118a32f2318d3ea06dd694c473818019d5e9" in a new tab



The screenshot shows a web browser window displaying the GitHub repository page for FairRootGroup / FairRoot. The browser's address bar shows the URL "GitHub, Inc.". The repository page includes a search bar, navigation links for Pull requests, Issues, and Gist, and repository statistics such as 17 Unwatch, 18 Unstar, and Fork options. The commit history for October 15, 2015, is visible, listing two commits: one by fuhlig1 titled "Add preprocessor statement to exclude nonexistent function call when ..." with commit hash 85b3118, and another by karabowi titled "FairMonitor::Draw() function modified. SetTextSizePixels() replaced b..." with commit hash 55a7e2c.

GitHub, Inc.

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Tree: 85b3118a32

Commits on Oct 15, 2015

 **Add preprocessor statement to exclude nonexistent function call when ...** 85b3118
fuhlig1 committed on Oct 15, 2015

 **FairMonitor::Draw() function modified. SetTextSizePixels() replaced b...** 55a7e2c
karabowi committed on Oct 15, 2015

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Add preprocessor statement to exclude nonexistent function call when ...

...using FairSoft versions older than jul15. When using older verions are used print a warning and dont register the command at the HTTP server.

master (#3) v-16.06 v-15.11a

fuhlig1 committed on Oct 15, 2015 1 parent 55a7e2c commit 85b3118a32f2318d3ea06dd694c473818019d5e9

Showing 1 changed file with 6 additions and 2 deletions. Unified Split

base/steer/FairRunOnline.cxx View

```

@@ -449,8 +449,12 @@ void FairRunOnline::RegisterHttpCommand(TString name, TString command)
449 449 {
450 450     if(fServer)
451 451     {
452     -   TString path = "/Objects/HISTO";
453     -   fServer->RegisterCommand(name, path + command);
452     + #if ROOT_VERSION_CODE > 336416
453     +   TString path = "/Objects/HISTO";
454     +   fServer->RegisterCommand(name, path + command);
455     + #else
456     +   LOG(WARNING)<<"THttp->RegisterCommand() only implemented in ROOT above version 5.34/26. Skip call of this function." << Fairl
457     + #endif
454 458     }
455 459     }
456 460     //

```

0 comments on commit 85b3118 Lock conversation

Status AliceO2

- OCDB MQ-frontend in the Parameter manager is available and can be used (**Raffaele Grosso, Alexey, Charis**)
- Automated build of AliceO2 sources for each pull request done to the repository. (**Giulio**)

Status AliceO2

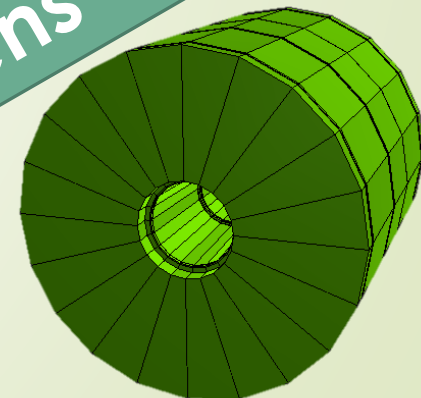
- Data Format API development in progress (**Matthias, MikolaJ**)
- Data Compression framework proto-type is under development (**Matthias, MikolaJ**)

Status AliceO2

Simulation: TPC

- Good progress on porting the simulation code from AliRoot to AliceO2
- Basic simulation implemented:
 - Geometry, hit creation, Digitization, Clusterization
 - The new pad plane layout mapping is used
 - Still event based (no continuous readout)

Jens Wiechula



Status AliceO2

28

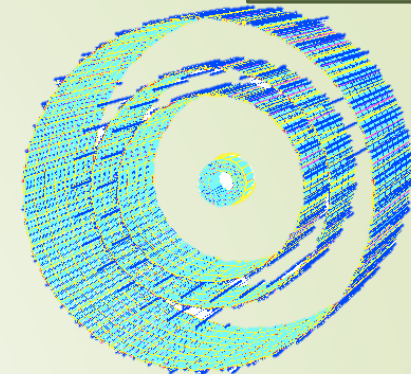
Simulation: TPC Next steps are the implementation of:

- The present HLT tracker (most probably as standalone version)
- More realistic energy loss description
- Better digitization including common mode effects
- Static distortions

Jens Wiechula

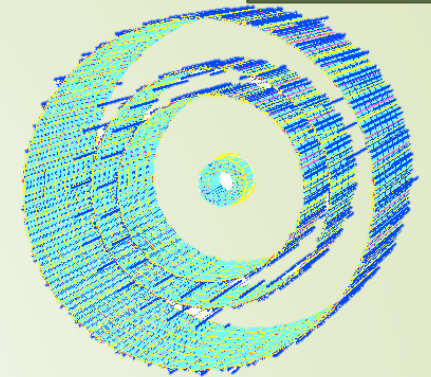
Status AliceO2

Simulation: MFT



- The geometry is transferred to AliceO2 (copy-paste from AliRoot)
- MC points are extracted at the entrance of the sensitive volumes; no digits (detector response) for the moment, this will come
- Simple reconstruction: The points are transformed in hits (one-to-one) and the hits of the same MC track are connected by a line to produce a track

Status AliceO2 Simulation: MFT



- The simulation and reconstruction work with the classical way of using macros
- The reconstruction works also with executable devices (Using FairMQ)

Status AliceO2

Simulation: ITS

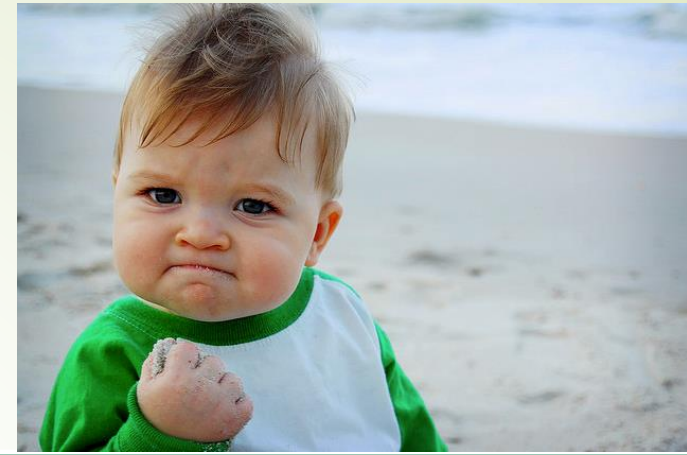
- Detailed Geometry
- Simulation, digitization



No activity since one year

Markus Fasel

ALFA



Status:

- In production
- The current release can be used for development of the ALICE O² system
- All basic requirement discussed in the last two years have been fulfilled.



What's Next?

- Moving to the AliBuild/Alfabuild system (almost there!)
- Improve the shared memory transport in FairMQ
- Further development of the libfabric transport in nanomsg
- Fine tuning in the DDS



