

Table of Contents

SciFi Tracker Test Beam Analysis Code.....	1
Software Installation.....	1
MacOSX.....	1
Linux.....	2
Quick Analysis.....	2
Ntuple Analysis Software.....	2

SciFi Tracker Test Beam Analysis Code

Software Installation

Ask Roman for access to the git repository and download the two packages *scifiusbboard* and *scifibeamtest*.

```
git clone https://your_user_name@bitbucket.org/RomanGreim/scifiusbboard.git
git clone https://your_user_name@bitbucket.org/RomanGreim/scifibeamtest.git
```

To update to the latest versions, you should do the following:

```
cd scifiusbboard; git pull
cd scifibeamtest; git pull
```

The code requires root v5.xx and qt4 to be installed. It also requires the *libusb* package.

MacOSX

This method of installing the software assumes that you are using macports (see their installation guide [here](#)). You need to install the a compatible root version before trying to compile the test beam code. The following installs the latest root 5 version with the required options. You will need to run the port commands as root (e.g. using sudo).

```
port install qt4-mac
port install python27
port select --set python python27
port install root5 +cocoa+fftw3+fitsio+gcc48+graphviz+gsl+http+minuit2+opengl+python27+qt_mac+root5
port select --set root root5
```

You then need to install the development version of *libusb*.

```
port install libusb
port install libusb-compat
port install libusb-legacy
```

In principle, this should be enough to be able to compile the test beam code on a mac.

The first step is to compile the *scifiusbboard* library:

```
./opt/local/bin/thisroot.sh
cd scifiusbboard
export USBBOARDPATH=`pwd`
qmake
make
cd Builds
export DYLD_LIBRARY_PATH=`pwd`:$DYLD_LIBRARY_PATH
```

During the qmake step, you will (should) be prompted to install the QuickUSB package.

Then you need to compile the *scifibeamtest* code:

```
cd scifibeamtest
qmake QMAKE_INCDIR+=`root-config --incdir`
make
```

Linux

The following example worked for the EPFL cluster where we have the LHCb software installed via the CernVM (*/cvmfs*). It also required that *libusb-devel* was installed on all of the cluster nodes.

To compile the *scifiusbboard* library:

```
SetupProject LHCb v37r3
cd scifiusbboard
qmake
make
export USBBOARDPATH=`pwd`
export LD_LIBRARY_PATH=$USBBOARDPATH/Builds:$LD_LIBRARY_PATH
export LD_LIBRARY_PATH=$USBBOARDPATH/support:$LD_LIBRARY_PATH
```

To compile the *scifibeamtest* software:

```
cd scifibeamtest
qmake
make
```

Quick Analysis

If everything has gone well, you should now be able to run the quickAnalysis.

```
cd scifibeamtest
./Builds/quickAnalysis <pedestalFile.root> <ledFile.root> <dataFile.root> --overview
```

-- MarkTobin - 21 Oct 2014

Ntuple Analysis Software

The analysis software that has been used during the second testbeam *convertToNtuple*, *gainAnalysis* and *cluster_analysis* are available at my public *lxplus* folder:

```
/afs/cern.ch/user/m/mneuner/public/testbeam/tools/
```

To use the software, you need to install *root v5.xx* and *qt4* as above and set the *\$ROOTSYS* -folder. In the main-files, you have to specify the folder in which the data is stored: replace by your folder. Create an additional folder "led_gain" in the data folder for the gain files. The folder "convertToNtuple" should be placed at

```
scifibeamtest/tools/
```

compile:

```
qmake (Qt will produce a make file for us)
make
```

Run:

```
./convertToNtuple <pedestal run number> <led ntuple run number> <beam dat file run number> --over
./gainAnalysis -l <led ntuple run number> -u <uplink number>
./cluster_analysis -p <pedestal run number> -g <run number of run you determined the gain> -f <be
```

SciFiTestBeamCode < LHCb < TWiki

For the cluster analysis, there is also the option to look at the adc values of all channels of one single event. Activate by setting option -d (for display events)!

The ntuples themselves are all available along with the data on EOS. I have already run gainAnalysis on all led files for uplinks 33 and 34 and uploaded them to

```
/afs/cern.ch/user/m/mneuner/public/testbeam/led_gain/
```

-- MaxNeuner - 5 Nov 2014

This topic: LHCb > SciFiTestBeamCode

Topic revision: r6 - 2014-11-05 - MaxNeuner



Copyright &© 2008-2019 by the contributing authors. All material on this collaboration platform is the property of the contributing authors. Ideas, requests, problems regarding TWiki? Send feedback