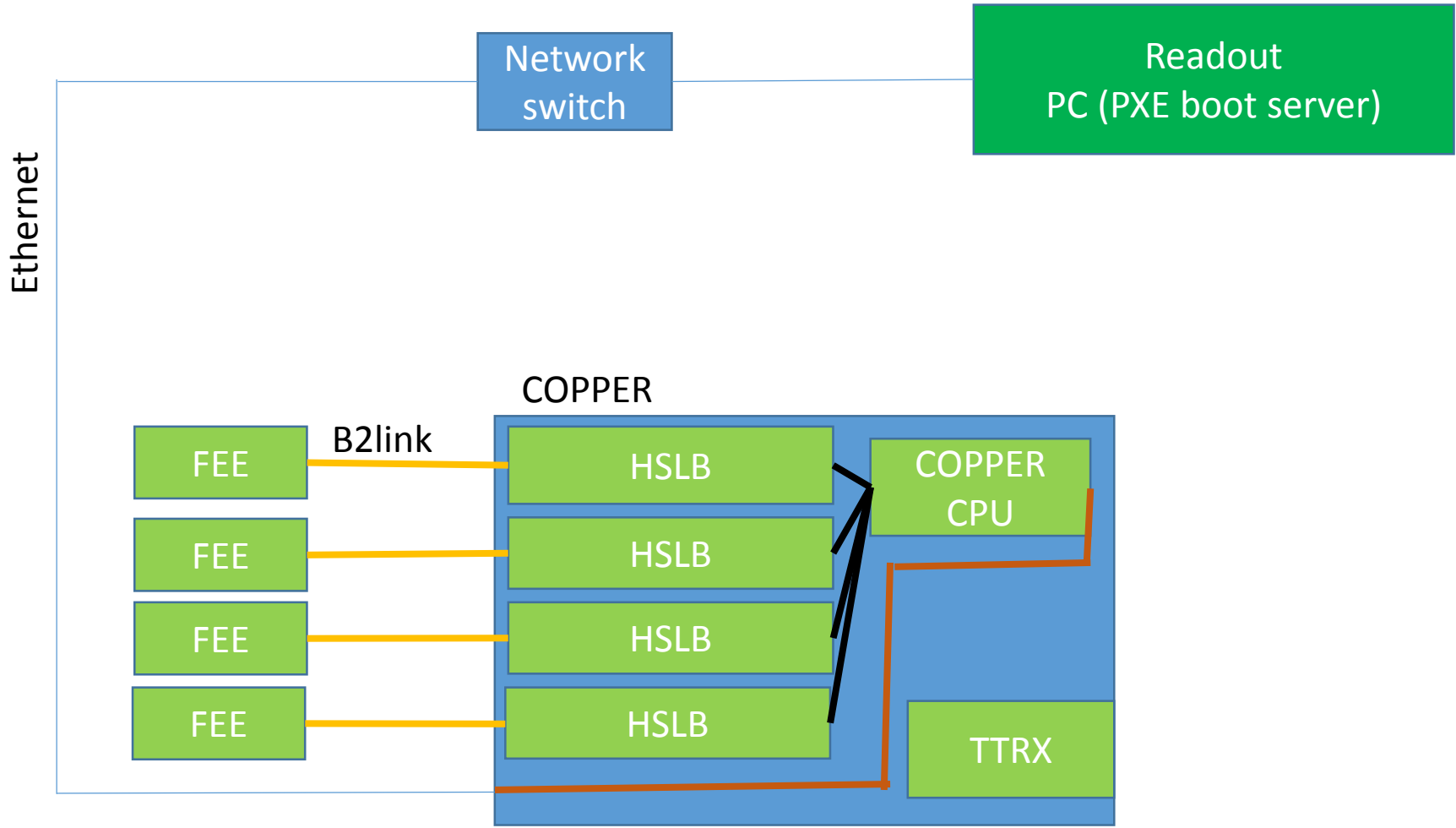


Pocket DAQ manual (2013.09.19)

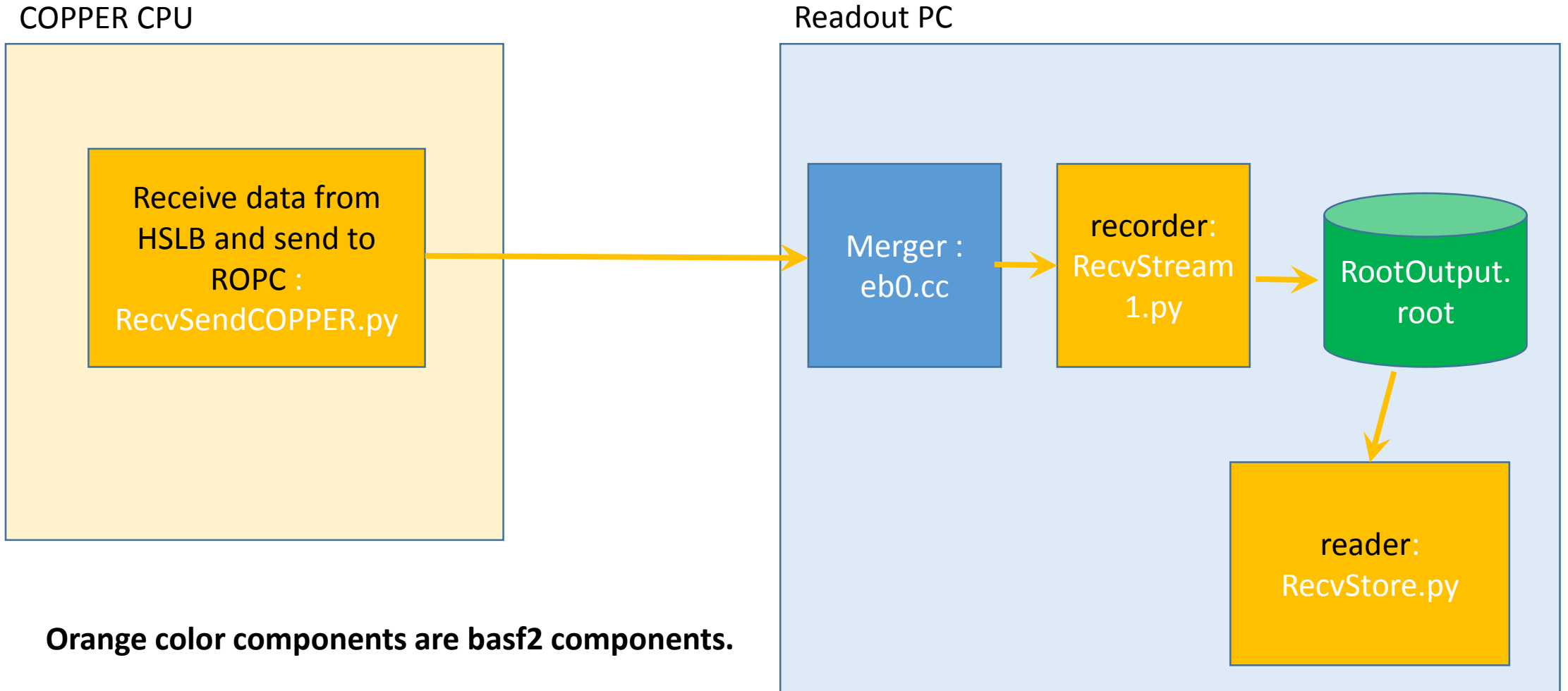
Satoru Yamada

Connection between components



Software components

These are stored under <https://belle2.cc.kek.jp/svn/trunk/software/daq>



Pocket DAQ w/o slow
controller and GUI

0. Before using pocket DAQ

- Setup a PXE boot server for COPPER CPU and install driver for COPPER etc
 - See <https://belle2.cc.kek.jp/~twiki/bin/view/Detector/DAQ/PocketDAQ>
- Install basf2 on both COPPER CPU and Readout PC
 - See <https://belle2.cc.kek.jp/~twiki/bin/view/Computing/SoftwareInstallation>
- For a release/daq directory, checkout revision **rev. 6741** for now.
 - Check daq/Sconscripts and check if env['CONTINUE'] = False is commented out.
 - Compile with scon.
- Compile eventbuilder
 - `cd ${BELLE2_LOCAL_DIR}/daq/eventbuilder/evb0/ ; gmake eb0`

0.5 Set parameters(1)

```
[ROPC] % cd ${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts
```

```
[ROPC] % emacs run_start.sh
```

Set arguments of start_copper.sh

Usage : start_copper.sh <HOSTNAME> <COPPER node ID> <FINNESSE bit flag: A=0x1, B=0x2, C=0x4, D=0x8>

```
/usr/bin/xterm -fn 7x14 -geometry 102x10+0+642 -e ${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts/start_copper.sh cpr006 1 1&  
/usr/bin/xterm -fn 7x14 -geometry 102x10+750+642 -e ${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts/start_copper.sh cpr007 2 3 &
```

<COPPER node ID> will be attached to RawCOPPER header.

```
[ROPC] % emacs start_eb0.sh
```

Set arguments of start_eb0

Usage : eb0 -n <# of COPPERs> <COPPER HOSTNAME1> <COPPER HOSTNAME2> ... <COPPER hostname n>

```
/usr/bin/xterm -fn 7x14 -geometry 102x10+0+342 -e ${BELLE2_LOCAL_DIR}/daq/eventbuilder/evb0/eb0 -n 2 cpr006 cpr007 -b -D
```

0.5 Set parameters(2)

NOTICE :

In `${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts/copper.sh`, a line, “source ~/.bash_profile”, is for setting up basf2 environment. You need to add basf2 setting commands in your `.bash_profile` (or other script file).

Please see "Setup of Software Tools" at <https://belle2.cc.kek.jp/~twiki/bin/view/Computing/SoftwareInstallation> for details.

```
[ ${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts/copper.sh ]
```

```
#
```

```
# setup basf2 environment (See "Setup of Software Tools" at  
https://belle2.cc.kek.jp/~twiki/bin/view/Computing/SoftwareInstallation
```

```
#
```

```
source ~/.bash_profile
```

1, How to start DAQ

```
[ROPC] % cd ${BELLE2_LOCAL_DIR}/release/daq/copper/daq_scripts
```

```
[ROPC] % ./run_start.sh
```


2, How to stop DAQ

- No stop button for now
- You need to specify max # of events or time to stop the run on a basf2 python file.

```
ROPC % cd ${BELLE2_LOCAL_DIR}/daq/rawdata/examples  
Edit RecvStream1.py
```

You can set following parameters to stop a run.

```
receiver.param('MaxTime', 300.)
```

```
receiver.param('MaxEventNum', 30.)
```

3. Read an output file and extract FEE buffer

- Output file name
 - `${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts/root_output.root`
- Read the root file
 - `[ROPC] % cd ${BELLE2_LOCAL_DIR}/daq/copper/daq_scripts`
 - `[ROPC]% ./ReadStore.sh root_output.root`
 - Modify `${BELLE2_LOCAL_DIR}/daq/rawdata/modules/src/PrintData.cc` as you like.

You can obtain a pointer to FEE data like this in event() function of PrintData.cc.

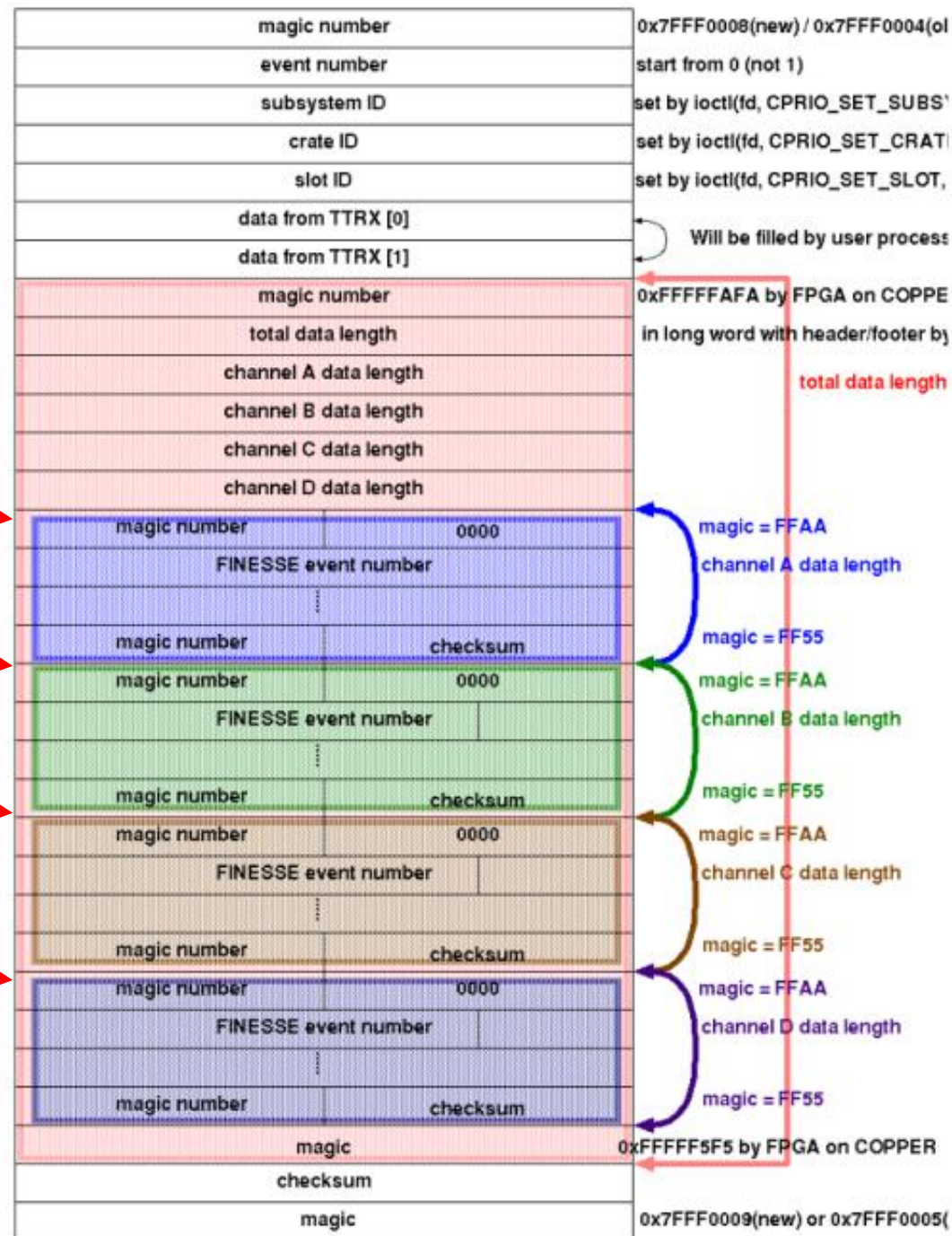
```
int* finnesse_buf_1st;  
...  
int* finnesse_buf_4th;  
  
finnesse_buf_1st = rawcprarray[ j ]->Get1stFINNESSEBuffer();  
...  
finnesse_buf_4th = rawcprarray[ j ]->Get4thFINNESSEBuffer();
```

Get1stFINNESSEBuffer()

Get2ndFINNESSEBuffer()

Get3rdFINNESSEBuffer()

Get4thFINNESSEBuffer()



End

Test bench at Tsukuba B3

