LP-TPC ALTRO READOUT
2009 – 2010 test beams

and

Future??

LP TPC ALTRO hw-readout

TLU & DBOX not used 2009

CLOCK

TRIGGER   EUDAQ TLU   DBOX   NIM   TRIGGER

Low Voltage

Kapton cables   80 FEC 3 RCUs

Global network

Optical links

DAQ

G

E

M

TPC

2 DRORC

Server

Aircooling

Temperature monitor

Control Monitor

micro Processor

Local network

Server

GUI presenter

80 FEC = 10 000 channels
10 W / FEC = 800 W
zerosuppression
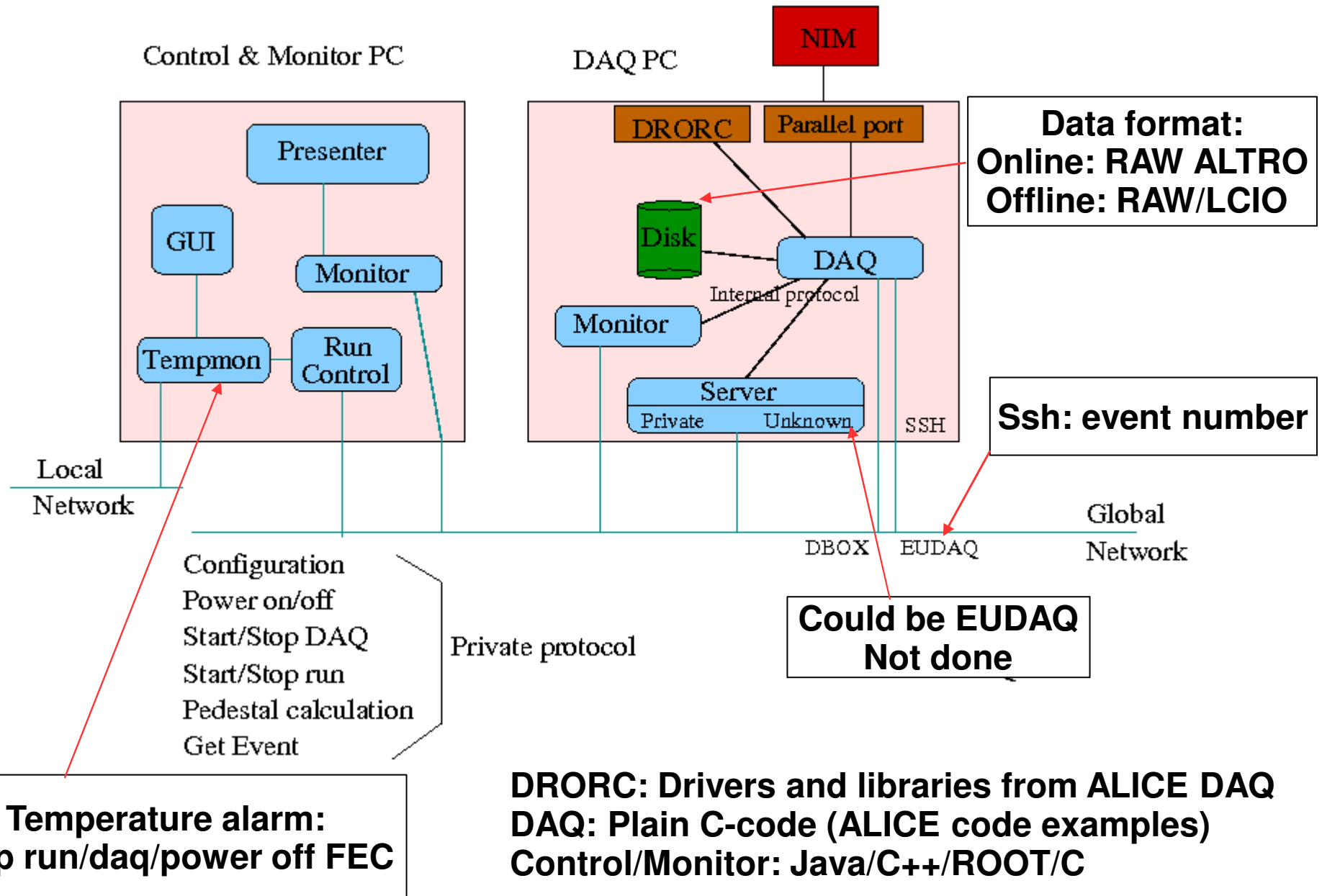LP TPC –> 60 kbytes/event & 20Hz
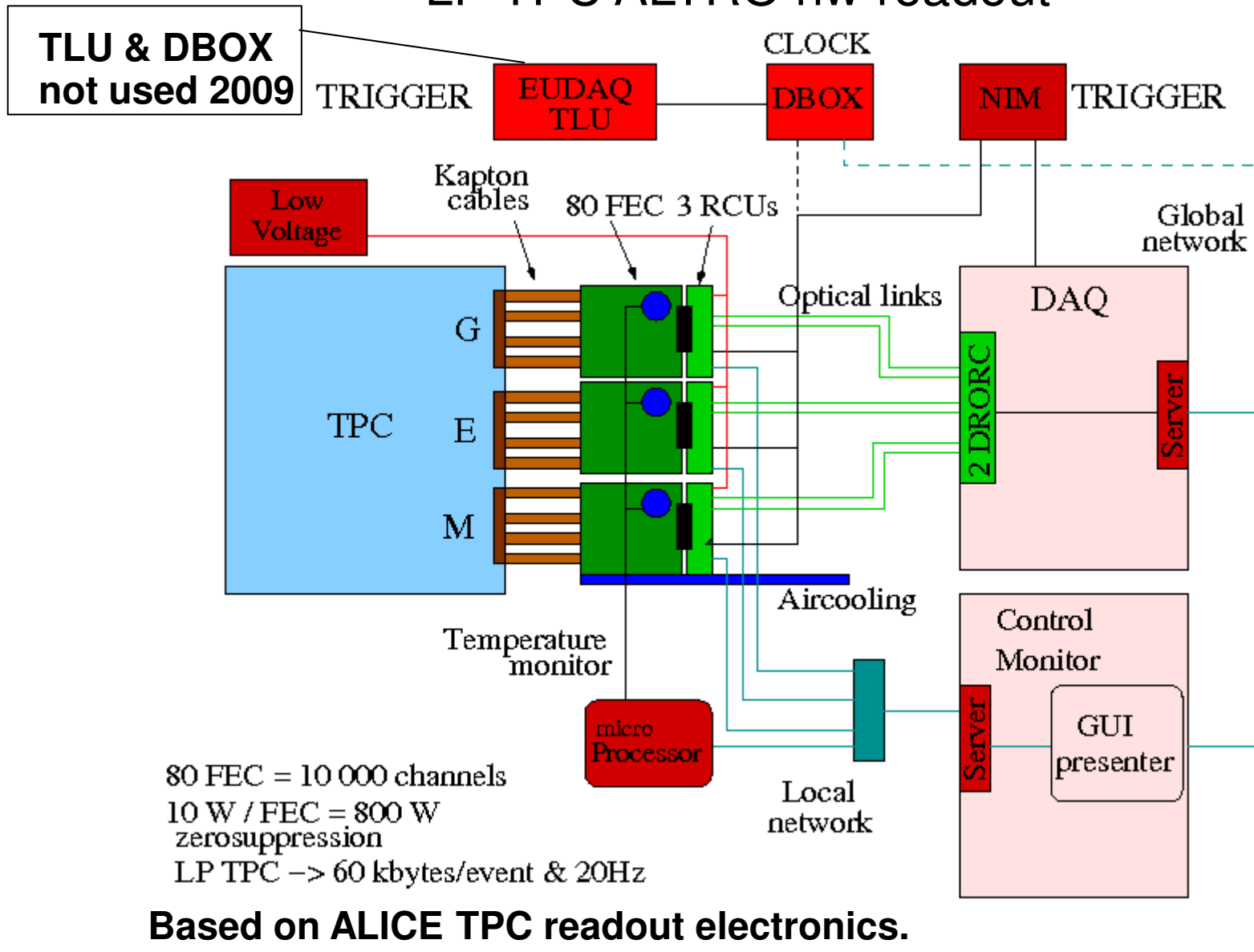
Based on ALICE TPC readout electronics.
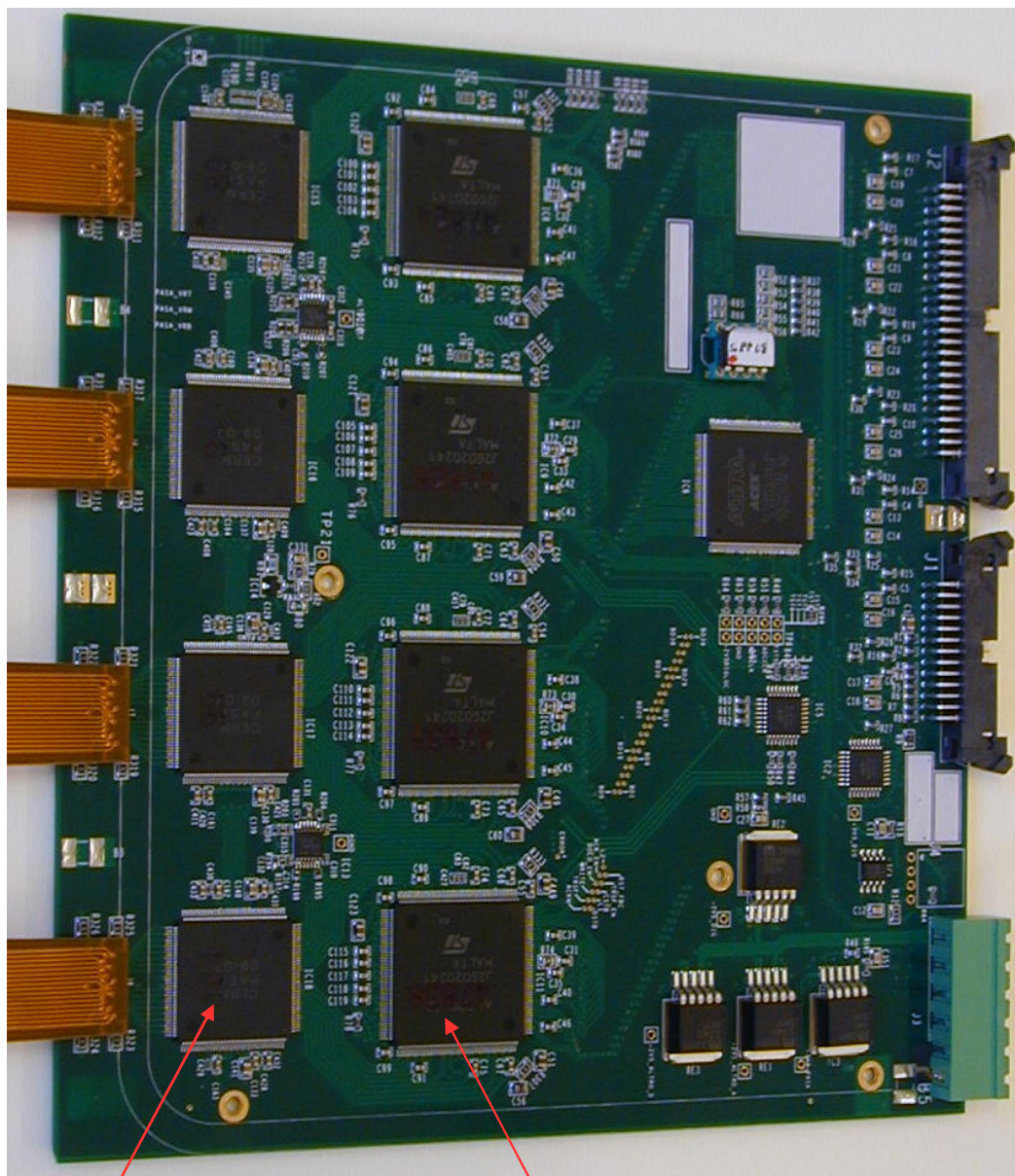**FEC = Front End Card (modified, programmable amplifier)**
RCU= Readout Control Unit (modified trigger/clock inputs
DRORC = Data ReadOut Receiver Card
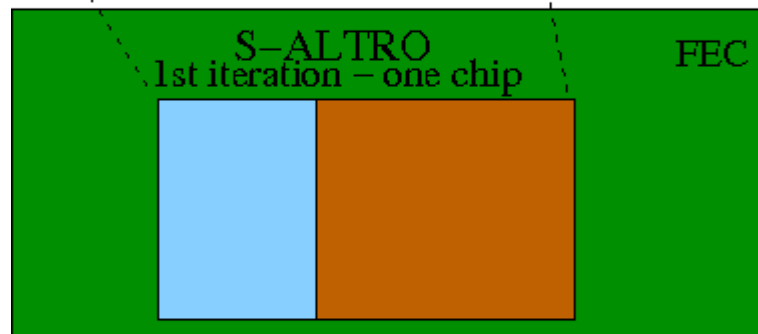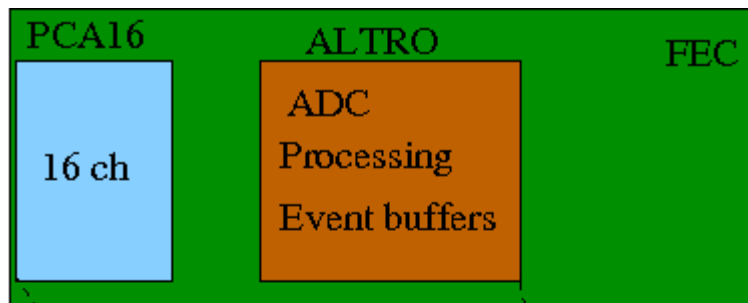
LP-TPC ALTRO STANDALONE sw-readout

Data format:
Online: RAW ALTRO
Offline: RAW/LCIO

Ssh: event number

Could be EUDAQ
Not done

Temperature alarm:
Stop run/daq/power off FEC

DRORC: Drivers and libraries from ALICE DAQ
DAQ: Plain C-code (ALICE code examples)
Control/Monitor: Java/C++/ROOT/C

Front End Card

PCA16
(programmable)

ALTRO

Future

PCA16 | ALTRO | FEC
16 ch | ADC Processing Event buffers

S−ALTRO
1st iteration − one chip | FEC

S−ALTRO
Final one chip
64 channels | TPC end plate

ALTRO READOUT

Power

Clock & Trigger

FEC

RCU

Backplane

Optical link
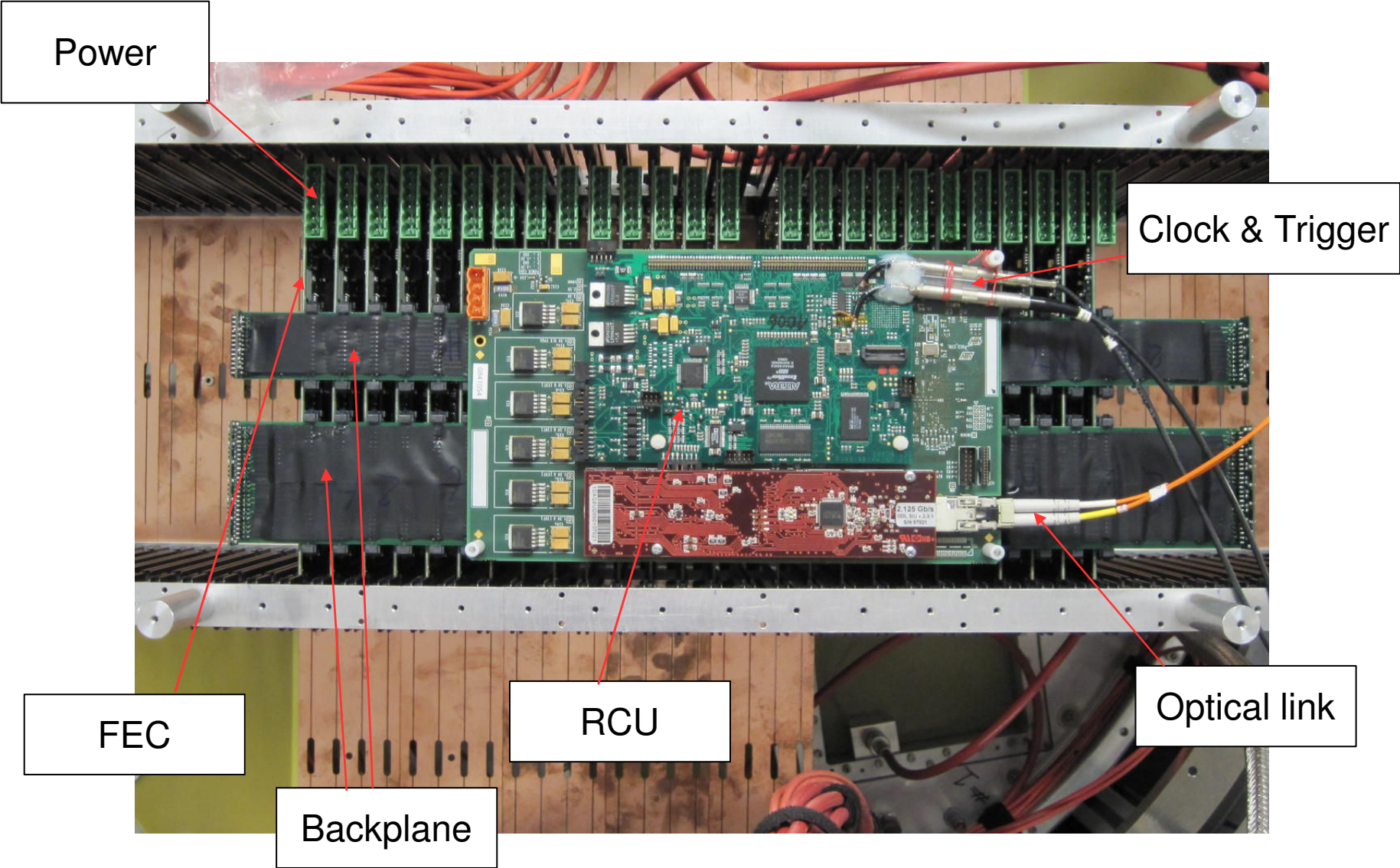
S-ALTRO mounted on TPC end plate

Digital Regulator

Optical link

Optical Fiber
-> ??????

Digital & PWR connector

S_ALTRO chips

Link interface

Analog Regulator

Cooling PIPE

40 Mhz sampling: 60mW/ch, power pulsing 0.9mW/ch
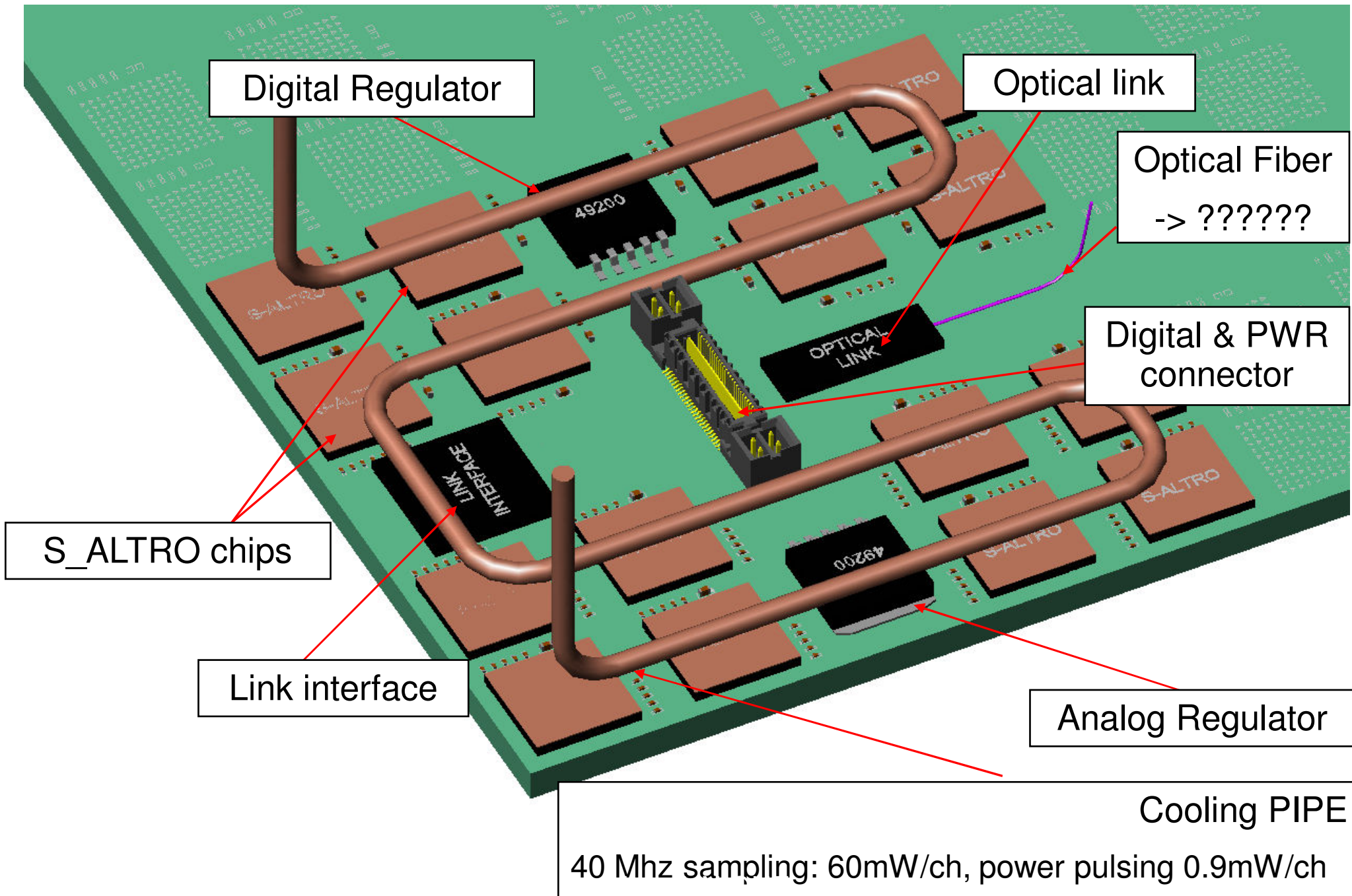
DESY:
working on the integration MicroTCA and the local control system DOOCS

Possible future?
rebuild existing ALTRO DAQ for the LPTPC within MicroTCA
Split I/O streams to DOOCS and DAQ process (EUDAQ or whatever)