

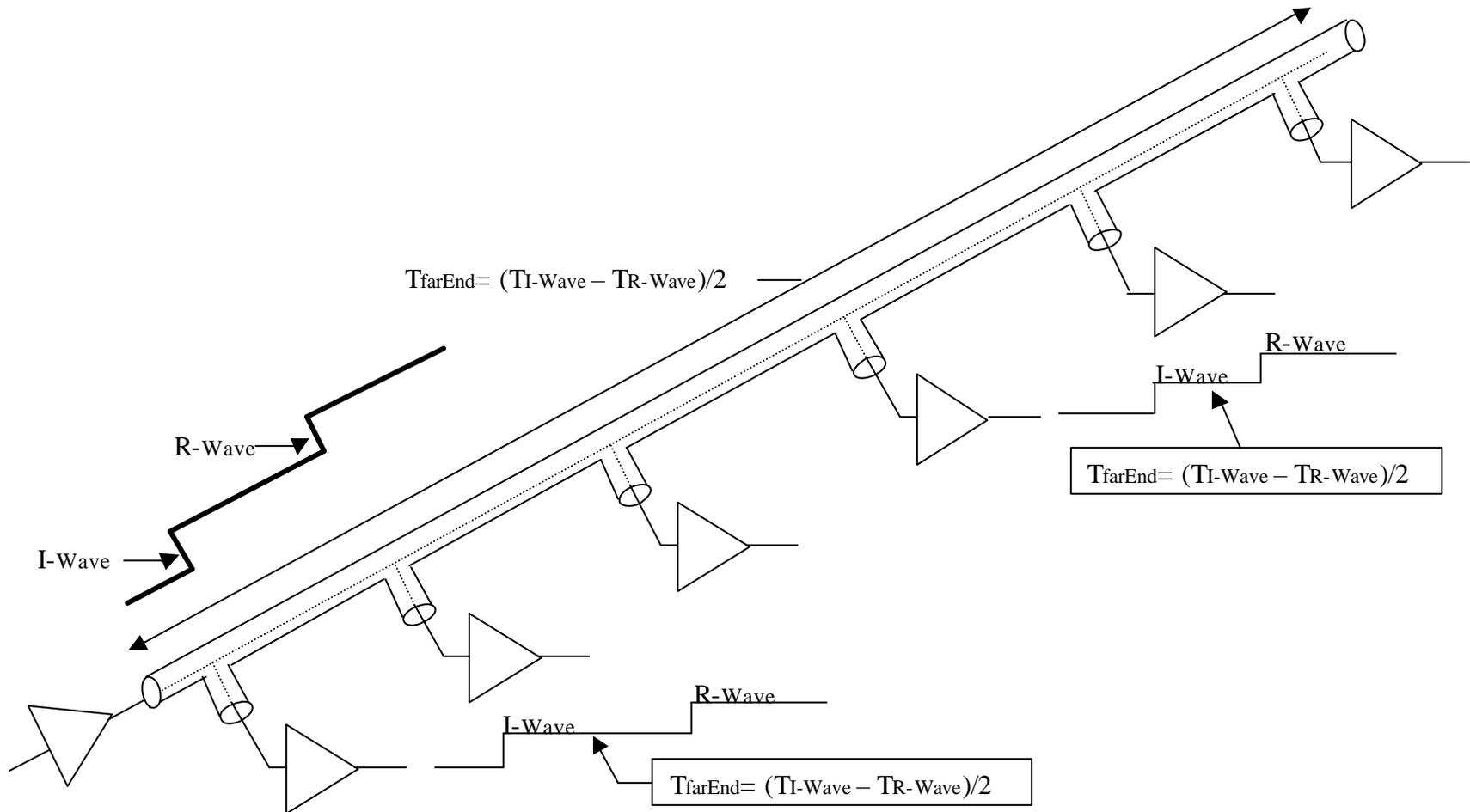
CD/CEPA

Possible areas of participation in CKM

- Front-end Electronics
 - Timing System
 - TDCs
 - Low cost packaging
- DAQ
 - Linux and networking software
 - WBS, Costing, Open Plan

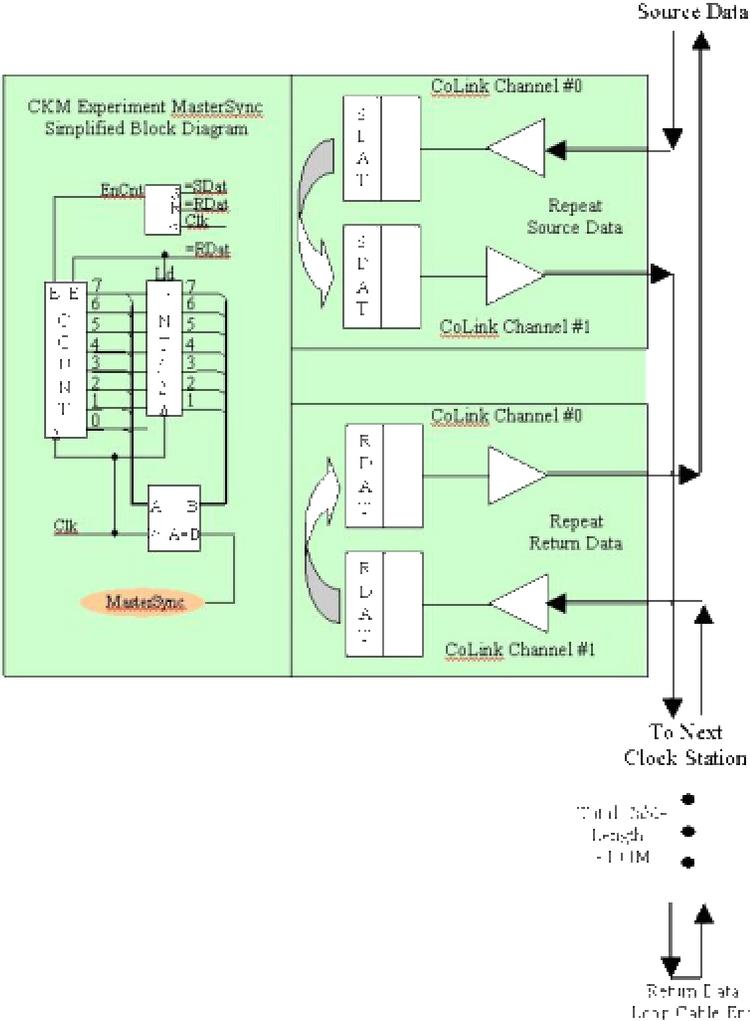
Timing Distribution System (TDS)

- far-end of cable is a common reference for all receivers
- synchronized @ $t = \frac{1}{2}$ (time from incident to reflected wave)



Digital TDS

(same principle using digital packets in place of reflected waves)



FPGA-based TDCs

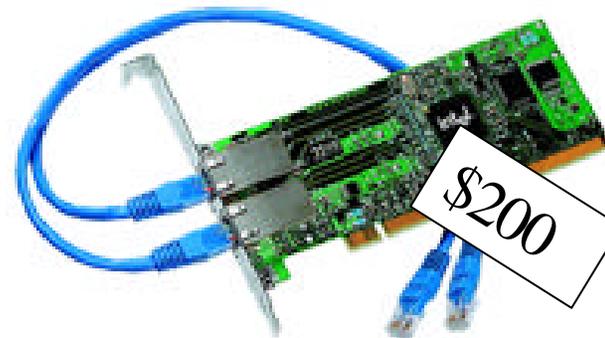
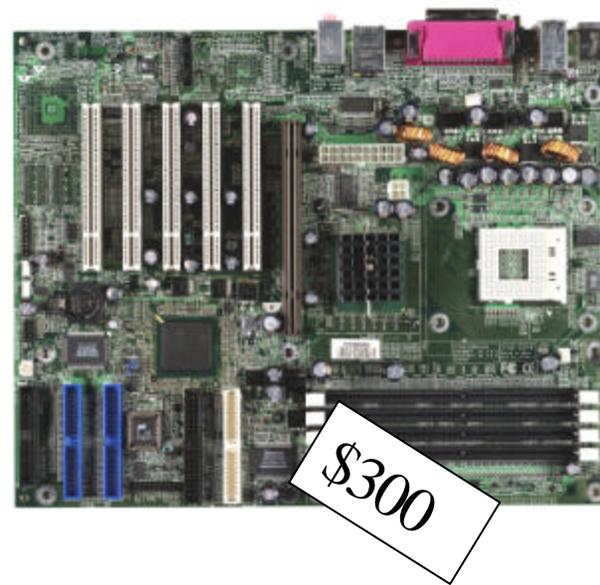
- commercial FPGAs with built-in deserializers
- no ASIC NRE costs
- complete system (TDC, buffering, signal processing, interface) on one chip
- reprogrammable



8 channels
400 ps/bin
~\$60/chan



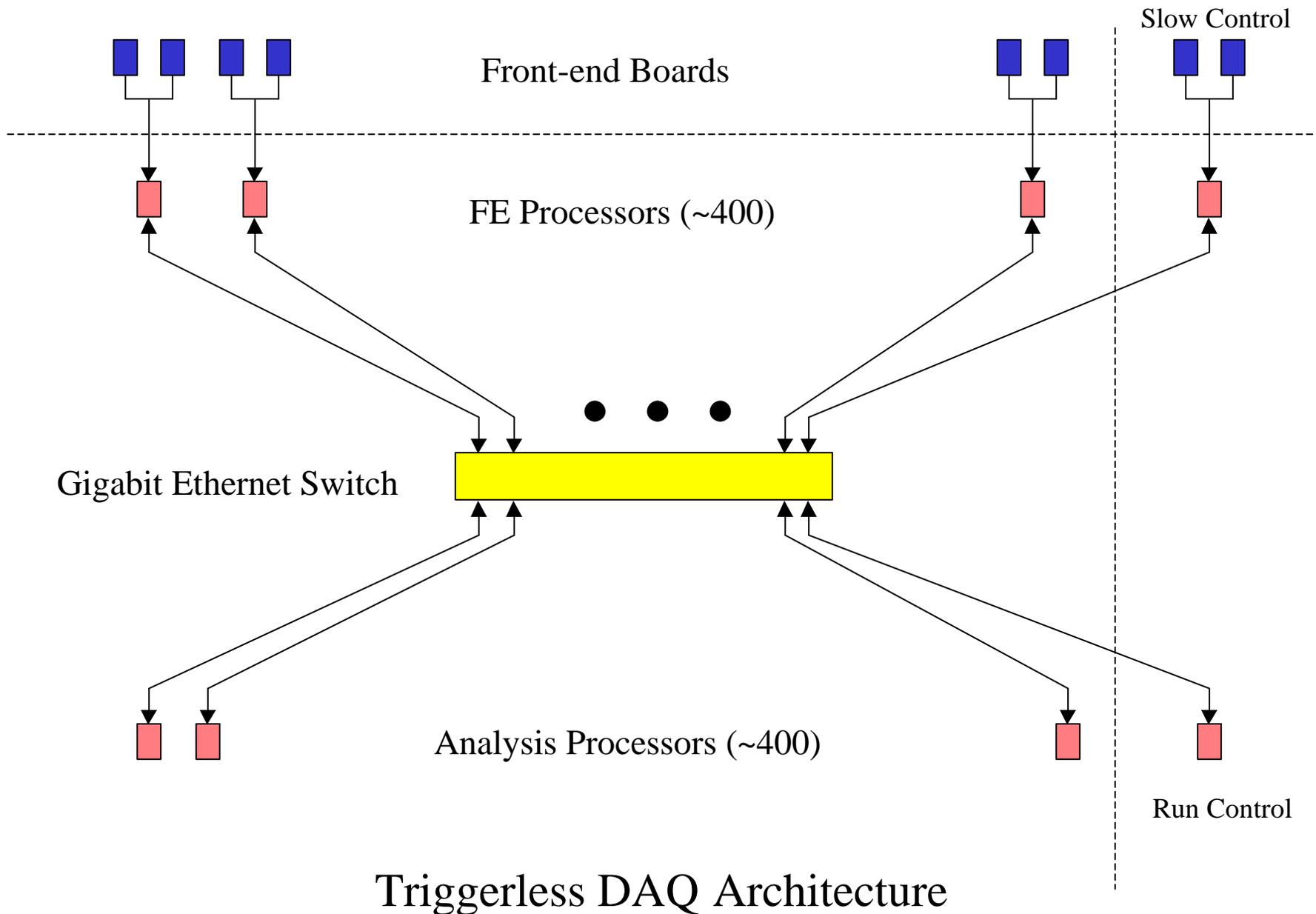
64 channels
1.2 ns/bin
~\$10/chan

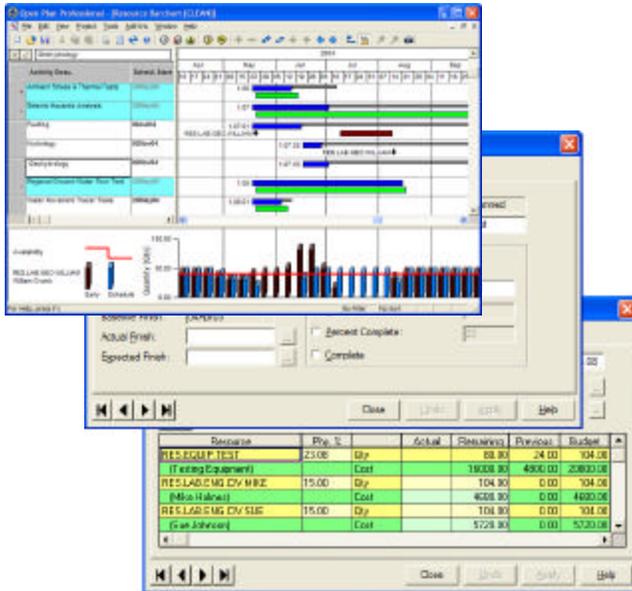


Low-cost (PC based) packaging for front-end electronics

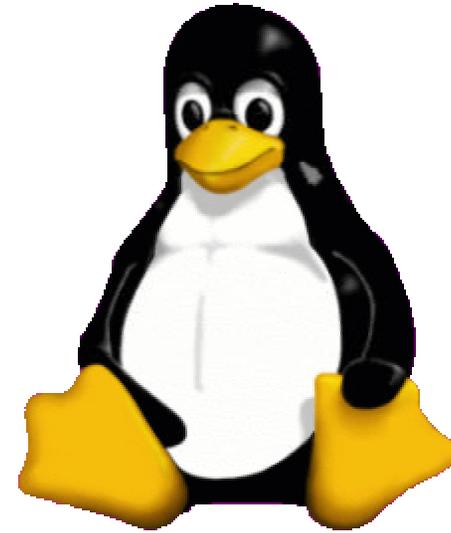
CKM DAQ

- First large-scale “triggerless” DAQ
- ~ 60K channels (TDC, ADC)
- 50 GBytes of data per 1 second spill
- All data sent to processor farm
- “Events” are 2.5 msec timeslices
- 20 GByte/sec network (Gigabit Ethernet)
- All commercial components after front-end





Costing, scheduling, etc



Linux



Networking Software