Correlator meeting, Minnaert, September 6 2012, 3.00 pm

Present: Jintao, Salvatore, Jonathan, Paul, Mark, Des, Harro, Aard

actions:

Jonathan: test fix of Erlang performance problems reading UDP packets
#on hold
Jonathan + Salvatore: figure out how to make packet spacing adjustable
#on hold
Jonathan: ask Paul to order a few 8GB DDR3 modules
#done remove
Des + Harro: come up with list of the parts of software that are done, need work, need writing, and an indication of time involved
#was partly done, remains
Arpad: place design considerations doc in memo series
#done remove

topics:

new FFT
Pulsar gating module
delay correction
timing of correlator, data and coefficient sources
remaining control software
timeline

new FFT
#Salvatore: 1024 freq bins needed, 1k point FFT used, need 2k. Unfortunately radix4, not possible. Raj FFT with many mods by Eric now used, 4 subbands, overflow problem fixed. Now however 4*8 MHz. Either double clock speed or parallellize design. Double clock speed not very likely. Needs several weeks of work.
#Jonathan: going from single integrations to 4 integrations, continuous next.

Seems like the new FFT will delay everything by quite a bit. Des suggests using the old design for a test correlator, so that they have something to talk to. Decision to make test version with Lofar FFT.

Pulsar gating module
#Jintao: is comparing simulations. WIll use floating point, for which 4 normal multipliers are needed. Quite slow but fast enough. Jonathan wants

to know the size of the coefficients and update frequency. Jintao tells every scan (few minutes), 2 64bit coefficients. Single waveform: 1kbit, once per scan. Number of shifts depends on dispersion. Discussion follows on tempo, tempo2 and polyco files, not quite clear if everybody understands each other. Jintao to write down his questions and then talk about it with Aard.

Timing of correlator
#Harro should write up a small doc about timing mechanism ***action Harro

Delay correction
#model needs to be tested. VDIF data needed, get a whole scan. Des will ask the operators nicely. Use Aribox for storage.

next meeting
#after Jive coffee, with subset of group (Jon, Salvatore, Jintao, Harro, Des)