Von:
Reinhard Keller
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Tel. 248

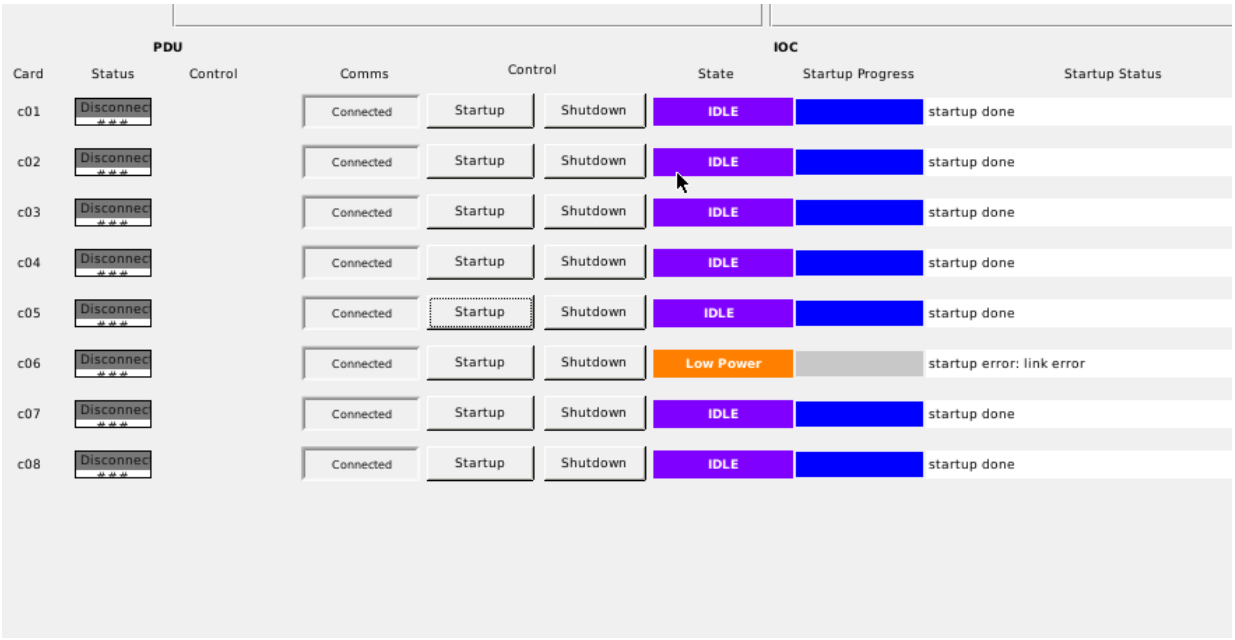
An:

Max-Planck-Institut
für Radioastronomie

Effelsberg, den 13.05.2020

Error search on the PAF BE, especially at Beamformer BF#06:

1. Problem: no BAT time signal at TRD#01 and BF#05-#08:
   This fault could be seen on tossix by a missing BAT signal on the TRD side and at the LEDs on the hardware of TRD and the beamformers. After shutdown and restarting TRD#01 via tossix the BAT time signal was present again. Before the CAT6 input cable for BAT was changed to another output of the timing unit, the unit was power resetted without changes.
2. Problem BF#06 is not working:
   The unit refuses to startup. Multiple power reset and pushing the reset button on the front side didn't help. I changed the ethernet connections with #05 with no effect. #05 still restarts while #06 doesn't.
   LED status on BF#06 is as follows:
   X: Aqua
   T: off
   M: off
   P: off
   Error messages on tossix are:
   - Busy | loading firmware
   - Low Power | Startup error: configuration error
     alternatively, after powering up:
   - Low Power | Startup error: link error



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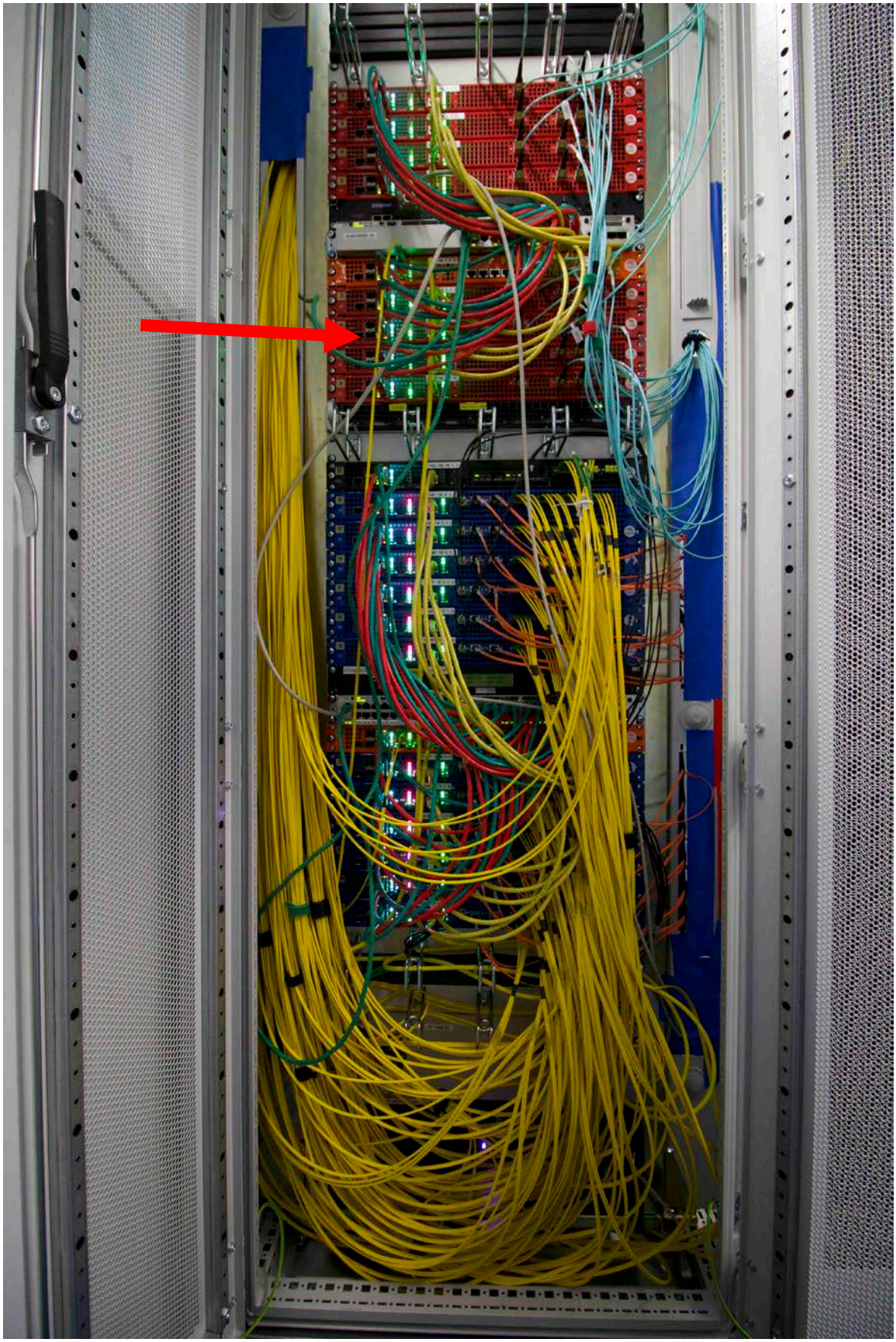

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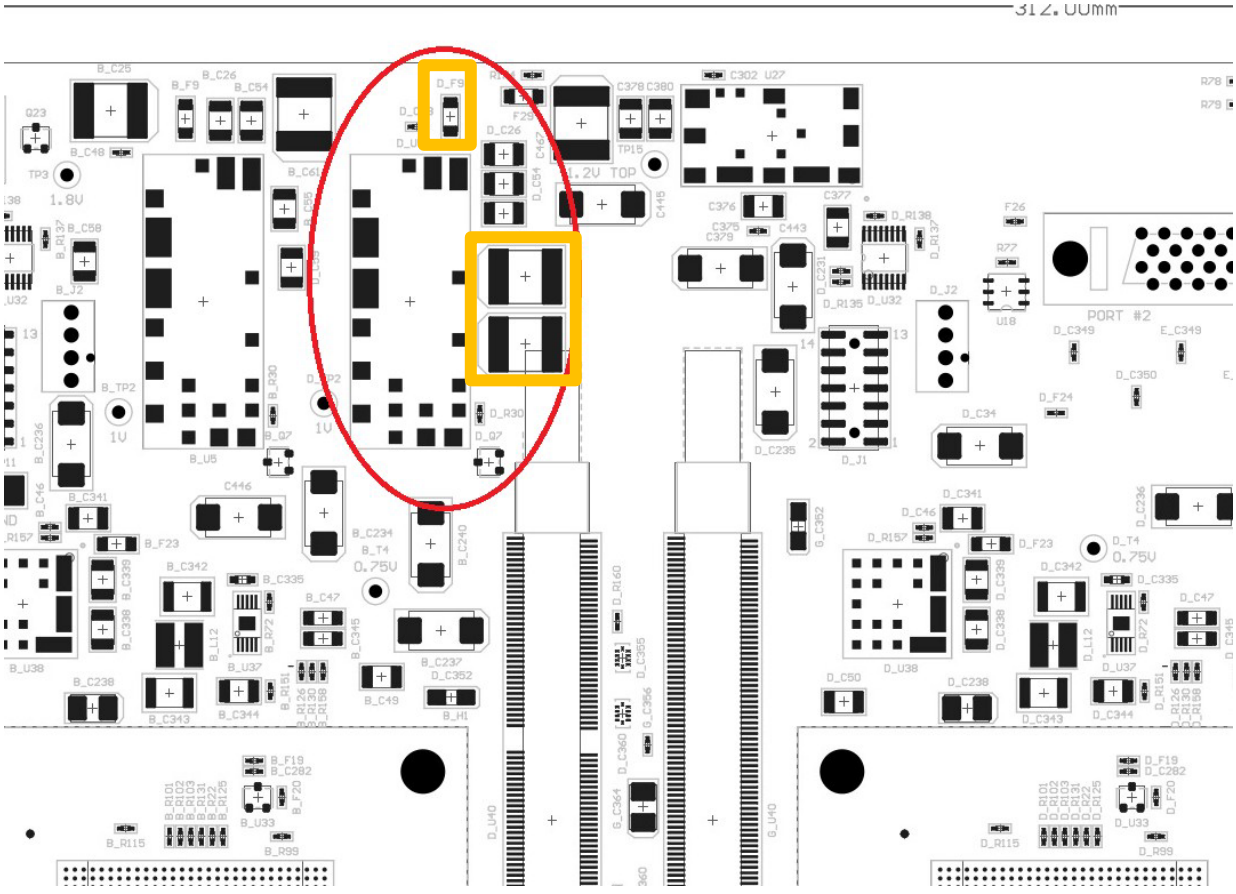
As a solution for this problem Daniel George CSIRO suggested to investigate the components around one of the 1V power supplies on the board:

Hi Titus, Reinhard,
You should not use just any ATX supply that fits as we use the comms bus to monitor and control the supply - some have issues and require firmware changes to make them work.
I think the ATX supply is OK and the issue is with one of the 1V FPGA power supplies on the DSP board. The electronics group should do a physical inspection of the Redback board, looking around this supply to see if one of the capacitors is shorted or the ferrite bead on the 12V input has blown. Pay particular attention to the components D_F9, D_C61, D_C25, D_C26 (see attached for location). These components are all on the top so the board doesn't need to be removed for this inspection.

Regards,
Daniel

After replacement of the elcos D_C25 and D_C61 with 100uF/35V each and D_F9 with a wire bridge the board came up with normal function. The capacitors are Vishay Sprague 594D107X0025R2T, the ATX power supply is Computec CPS-4411-1A1.



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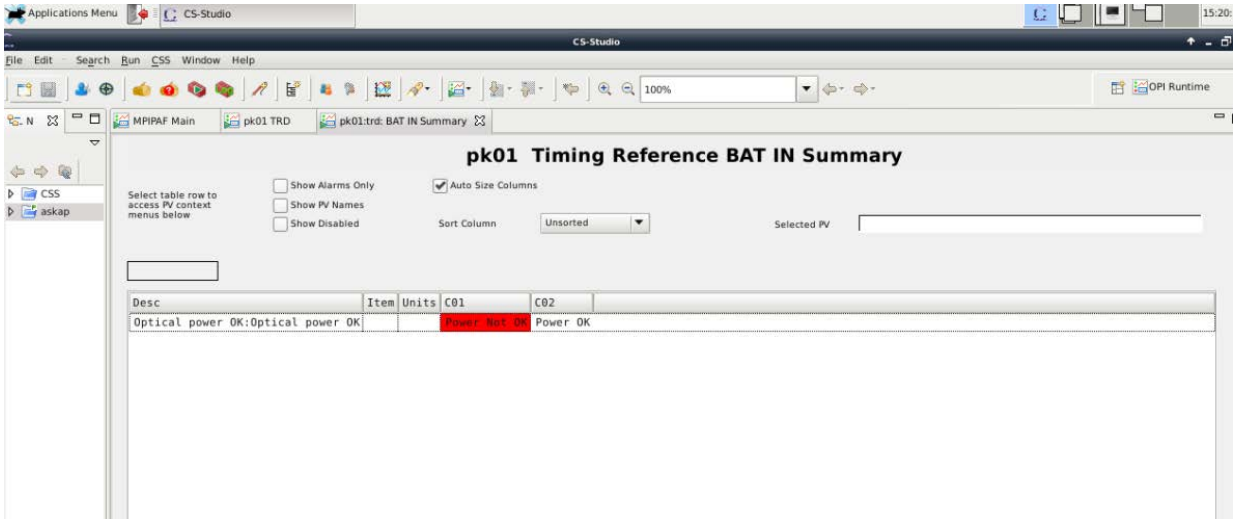
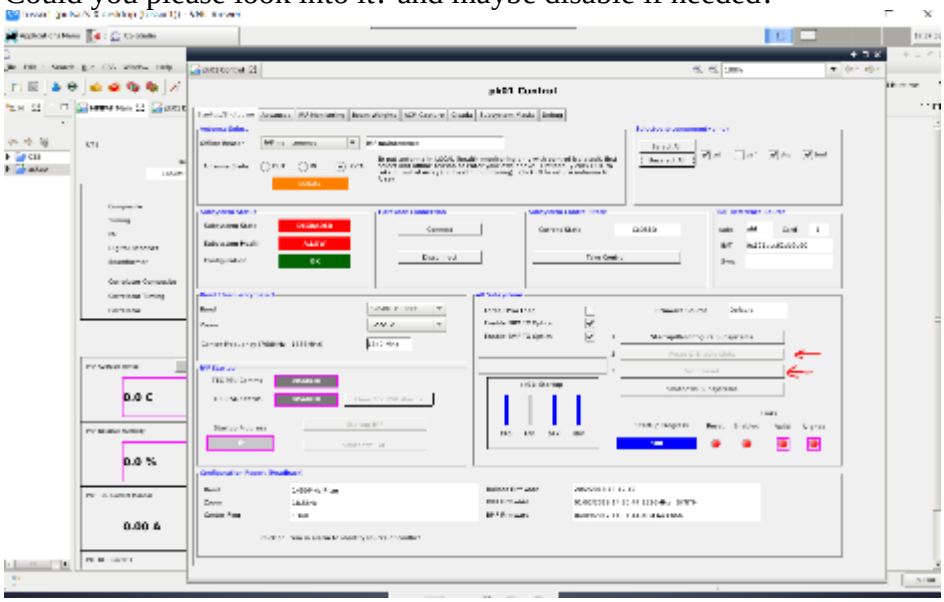
After fixing this there was another error on the TRD unit indicating low optical power on the optical input of the BAT signal. This turned out not to be connected so the error has been took out of the error management and is ignored by the system now.



Dear Daniel,
The digital receiver and the beamformer hardware are all starting up fine. I can also see a time stamp (UTC from BAT) in the DRX and BMF GUI on tossix.
I am not however able to " Reset & Enable links" and also "sync reset".
Could you please look into it? and maybe disable if needed?



Hi Titus,
The optical BAT signal is not used on your system (a yellow copper CAT5/6 is used instead). There was enough power before to prevent that alarm but it can be ignored (I can probably disable it). One of the two fibres to the timing cards is still needed for the clock reference.
Are you seeing valid timing on the digital receivers / beamformer hardware and do they all start OK?
Regards,
Daniel