Change log DSC v120

18.10.2021

Features:

PCI Bus support

The Core3H Firmware now supports communication via the PCI-Bus. This allows the control loop of the Control software to read out all statistical values and configure the threshold for the 2-Bit conversion without using the serial bus. That way the control loop only needs one second to update all Core3H boards in the DBBC3 system.
The calibration routines also use the PCI Bus now, speeding up the calibration process up to four times.
In consequence the control loop is now activated automatically after the configuration has been loaded by the control software.
There is no need any more to disable the control loop to send commands to the system, this is handled automatically.
The loading of the taps for the filters is also performed via the PCI Bus, loading time is now below one second.

Multicast support

Multicast is now supported. Every second a multicast package is send out that includes all statistical values.
The vdif-timestamp is also included for each board each second, including the epoch.

sampler statistics/validation commands

A new command has been added (`samplerstats=board_nr`), that prints out power level, offset and phase delay for each ADB3L-Samplerboard. Each value is also validated to give the operator feedback if samplers are properly calibrated.

print-commands included for all config files

There are three new commands included that print out the contents of the config-files:
- `printmainconfig` prints out the content of the main config-file dbbc3_config_file_oct_D_120.txt
- `printadb3lconfig` prints out the ADB3L config-file
- `printcore3hconfig=board_nr` prints out the Core3H config-file of the specified Core3H

time command

The time command now prints out the vdif time. It is also correct now within one second when using up to eight Core3H.

Config file structure

The main config-file, the Core3H config-files and the flt-files with the filter taps are now stored in a separate folder "DSC_120" within "C:\DBBC_CONF" folder to improve the overview.

Core3H Config-file simplified

Commands that were always the same during the configuration have been removed from the config-files. These routines are now included in the `core3init` command.

pps_delay added

The delay between external 1PPS and the internal generated 1PPS is now displayed in the multicast and by the command pps_delay.

Bugfixes:

- time command now prints out all timestamp from the same second
- a bug in the timesync command (Core3H) has been fixed that gives out a false error message
- a bug in the configuration routine of the Core3H has been fixed that send out a partial command at the end of the process.