Propeller Object Exchange

Contributed Code for the Propeller Microcontroller

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Discret Fourier and Hartley Transformation

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Abstract for the Spin object "Hartley.Spin" in category Signal

Keywords: Discret Fourier Transformation DFT, Discrete Hartley Transformation DHT, Fast Fourier Transformation FFT

The object realizes a Discret Fourier Transformation (DFT) based on the Hartley transformation with the following properties:
Transformation with 8, 16, 32 .. 2048 .. points
Assignable to 1, 2 or 4 Cogs
Input data up to 15 bits plus sign or 16-bit unsigned
Output data 31 bits plus sign
Fourier spectrum for 1024 points with 80 MHz processor clock and 4 cogs in 7.5 ms

Mathematical foundations for the Propeller object are:
Fast Discrete Hartley Transform (DHT) for calculating the discrete Fourier transform (DFT) by means of recursion and parallelization
CORDIC technique for sine, cosine, multiplication, magnitude, phase

In the demo programs the Triggerpin is on port 27 and the PAL TV pins are on ports 23..20. These assignments can be changed in the Demo and Display objects themselves.

It is important to read the documentation file "Hartley_Documentation.pdf" before!

Otherwise it could be difficult to understand the theory, the code, and the in- and output of the Hartley.Spin object! The documentation is in German and partially translated to English if necessary.

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OBEX_Hartley.ZIP	339.38 KB

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