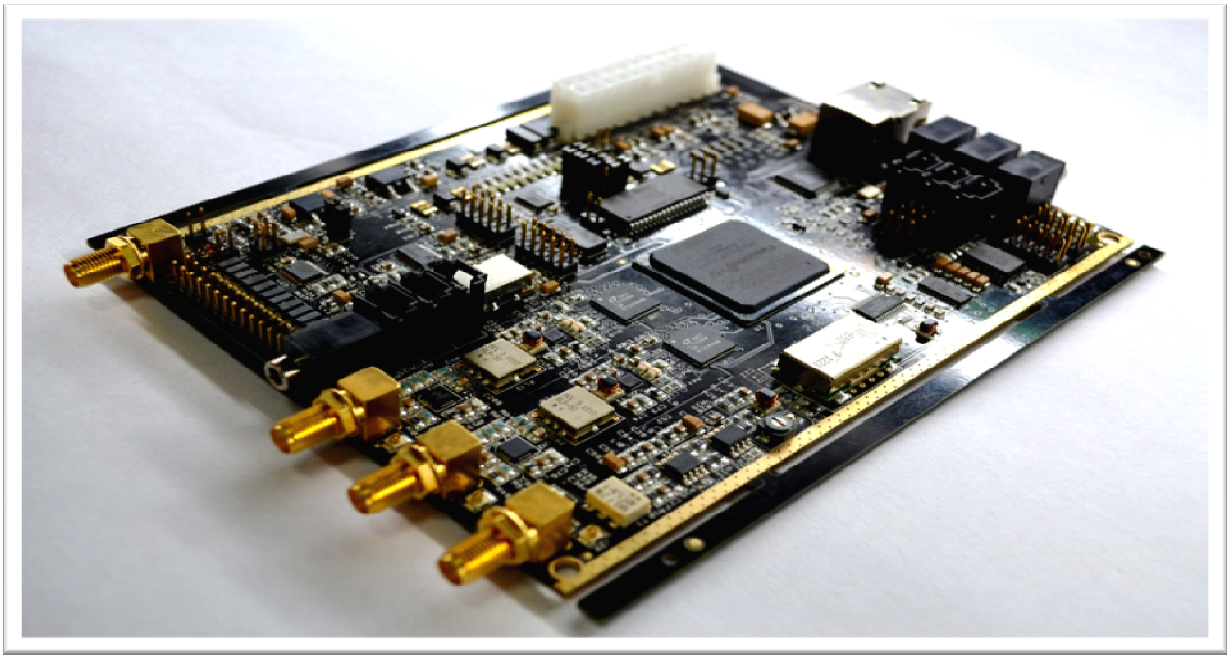

ANGELIA, daughter of Hermes, spirit of messages, tidings and proclamations.

ANGELIA is a state-of-the-art soft core uP 4th generation DDC/DUC, Hermes-like, transceiver board that incorporates an Altera Cyclone IV FPGA and dual LTC2208 ADCs. The large FPGA and dual ADCs permit exceptional versatility and performance. The FPGA is large enough to allow on-board, soft-core processing, if desired, and the dual ADCs allow true coherent receiver operations.

Angelia Highlights:

- Developers- Joe, K5SO (Software & Firmware), Abhi (Hardware & PCB)
- Dual Phase Synchronous LTC2208 16 Bit ADCs, additional third ADC via daughterboard
- Large 115K (EP4CE115) Cyclone IV FPGA
- Supports 7 High performance Independent Receivers on a single ADC
- Supports 2 Coherent Receivers using independent ADCs/antennas for beam forming/diversity reception (expandable to 3 Coherent Receivers using the coming daughterboard)
- FPGA has enough space to add on multiple soft core processors for standalone operation
- Onboard 64MB Flash
- Onboard 4MB Synchronous RAM
- Supply via PicoPSU120-W or similar 20 pin ATX power supply
- Exceptionally clean transmitter and receiver
- Based on the work of the OpenHPSDR Community
- Development funded by Apache Labs

Specifications similar to Hermes:

- Continuous, uninterrupted, receive coverage from 10KHz to 55MHz
- Supports Real-Time display of entire spectrum from 0-55mHz (with suitable PC software)
- Supports control of Alexiares (Alex) Tx/Rx filters
- Each receiver can display 48/96/192kHz of spectrum
- Blocking Dynamic Range (ARRL Method) no detectable gain compression below ADC overload
- Transmit and receive image rejection > 110dB
- Full duplex operation, any split over entire 160m to 6m range.
- Transmitter two-tone 3rd order IMD of -50dBc on 20m @ 400mW output
- 500mW RF output on 160 – 10m amateur bands, 350mW on 6m
- Built-in high performance preamp, with a noise floor typically -135dBm in 500Hz
- Software-selectable 31dB input attenuator in 1dB steps
- High performance receiver – same specifications as the HPSDR Hermes (ie Dynamic Range typically 125dB)
- FPGA code can be updated via the Industry Standard TCP/IP network Ethernet connection
- Seven user-configurable open-collector outputs, independently selectable per band and Tx/Rx (for relay control, etc - with sequencing via PC code)
- Separate open-collector PTT connection for amplifier control, etc, with sequencer
- Microphone PTT jumper-selectable from tip or ring connection
- Bias for electret microphones via jumper
- Four user-configurable 12 bit analogue inputs (for ALC, SWR etc)
- Three user-configurable digital inputs for linear amplifier over temperature, etc
- I2C bus connector for control of external equipment
- Full QSK operation (performance dependant on associated PC and control software)
- Stereo audio outputs at line and headphone levels
- In-built 1W stereo audio amplifier for directly driving speakers
- Direct, de-bounced connections for a Morse key (straight or iambic) and PTT

- Low phase noise (-140dBc/Hz @ 1kHz at 14MHz) 122.88MHz master clock, which can be phase-locked to an internal 10MHz TCXO or external frequency reference
- Direct ribbon cable interface to Apollo 15W power amplifier, low pass filters and automatic ATU
- Industry Standard TCP/IP network Ethernet interface supports static, APIPA or DHCP IP address
- Angelia responds to ping and ARP requests and auto senses network connection speed
- Eight (8) Layer PCB design for the most professional, state-of-the-art, design available.
- Open Source design, NCL.