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## **ASIC Summary**

The P19800B EVAL3 board contains a socket which can be used for screening parts. The EVAL3 board is a demo-ready board, which comes with control software (Fig.2). The P19800B spectrometer ASIC processes up to 5.5GHz bandwidth input signals provided by microwave front ends. The ASIC (Fig.1) includes a VGA, a 6-bit ADC, an FFT based on polyphase filtering and an accumulator capable of accumulating up to 34 seconds of frequency-domain data. The chip also includes an output data interface, a PLL based frequency synthesizer and a SPI interface for the ASIC's programming and data interchange at low speed. The chip is offered in a BGA package and as an IP block for integration into SoCs. (One P19800B ASIC is included with purchase of EVAL3)











Figure 3. Block diagram of EVAL3 Evaluation Board.

## **ASIC Capabilities**

The ASIC digitizes the RF signal and splits the spectrum into 8192 frequency bins. The power or magnitude is computed for each bin and the result accumulated.

- Sampling rate up to 8GS/s
- Input signal bandwidth up to 5.5GHz
- Digitizer ENOB > 4.5-bit to 4GHz
- Power consumption < 1.6W (full functionality)
- Up to 8192 Frequency bins within 0 to 4GHz
- Accumulation time programmable from 2us to 34s
- An integrated 16GHz PLL with selectable Fref



Figure 4. Picture of EVAL3

## **EVAL3 Operation requirements:**

- +3.3V @ 2.0A single supply.
- P19800B ASIC inserted in the socket.
- USB connection to PSOC for control.
- External balun for differential input signal.
- Reference clock source from 34MHz up to 2GHz.
- Optional FMC connector on bottom side to mate with LPC FMC connectors on FPGA development boards.