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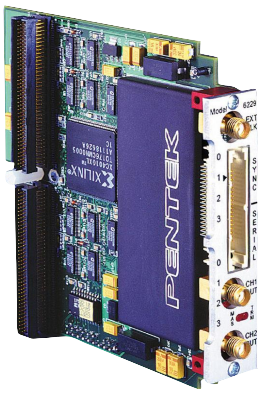
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Model 6229

Dual Digital Upconverter and D/A - VIM-2



General Information

Model 6229 is a VIM-2 module which attaches directly to VIM-compatible processor boards. The Model 6229 contains two complete channels of interpolation and frequency translation suitable for linking a DSP system to a radio transmitter.

Applications include generation of communication and radar test signals, electronic countermeasures, and implementation of transmit functions for advanced software radio communications systems.

Digital Upconverter

Both channels use the AD9856 Quadrature Digital Upconverter which includes half-band and CIC interpolation filters, a programmable local oscillator, a complex mixer, and a 12-bit D/A converter.

An on-chip multiplier accepts a reference clock from 5 to 50 MHz and multiplies it to a maximum 200 MHz internal sampling clock.

The reference clock can be driven from a local 50 MHz crystal oscillator or from an external input reference. A front panel ribbon cable allows multiple slave 6229's to be driven from a single designated master 6229.

Complex baseband data samples consisting of 12-bit I+Q pairs are accepted at rates as high as 25 Msamples/sec. The baseband signal must be band-limited to 45% of the input sampling rate, or approximately 11.25 MHz for 25 MHz input rate.

Three halfband interpolation filters upsample the baseband input by either 4x or 8x. Additional upsampling is performed by a CIC filter which interpolates by x2 to x63 in steps of 1, providing an overall interpolation range from x8 to x504.

Complex local oscillator samples are generated by a direct digital frequency synthesizer, programmed with 32-bit resolution to cover a LO range from DC to 80 MHz.

The translated single sideband signal, now sampled at 200 MHz, is fed into an on-chip 12-bit D/A converter, capable of producing analog output signals anywhere up to 80 MHz. An optional inverse sinx/x filter can be inserted in the signal path prior to the D/A to compensate for its zero-order hold frequency response.

Oversampled D/A Converter

For applications requiring a non-translated baseband D/A output, samples from the VIM processor board can be upsampled with no frequency translation and then sent to the D/A converter. This minimizes the complexity of an output smoothing filter.

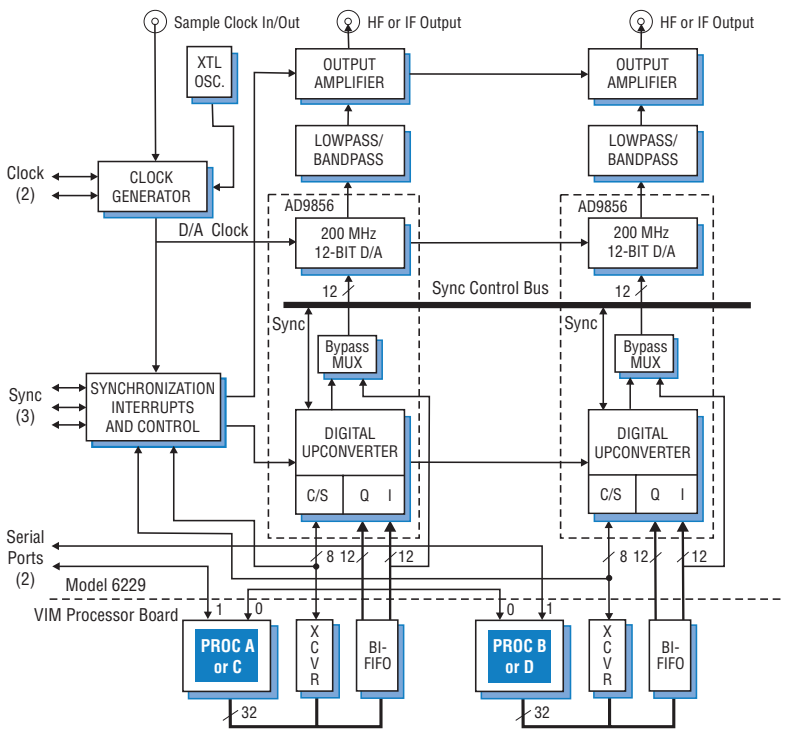
VIM Interface

Complex baseband samples generated by the baseboard processor are sent into the 6229 through the 32-bit parallel BI-FIFO path. Data may be packed with both I and Q components in a single 32-bit word for more efficient transfers.

ReadyFlow Board Support Libraries

Features

- VIM-2 module for VIM-compatible processor boards
- Translates digital signals to HF or IF frequencies, as high as 80 MHz
- Provides two identical, independent channels
- Interpolation filter, complex digital mixer, and programmable digital LO
- 12-bit 200 MHz D/A covers DC to 80 MHz output range
- Lowpass or bandpass output filters for baseband or IF analog outputs
- Synthesized signal generator mode
- Synchronization across multiple modules



Ordering Information

Model	Description
6229	Dual Digital Upconverter and D/A - VIM-2

PENTEK

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