

12-bit 25 MHz/10-bit 70 MHz A/D Converter VME Boards

General Information

Model 6425 is a 12-bit, 25 MHz A/D Converter VMEbus board; Model 6470 is a 10-bit, 70 MHz A/D Converter VMEbus board. Both models include variable gain amplification and signal conditioning. Also included in both models is a preselector to reject out-of-band signals which would otherwise reduce dynamic range.

Among their other uses, these models are intended for use as front ends for the Pentek digital receivers. Connections between them are made via front panel flat ribbon cables available from Pentek.

Signal Conditioning

Two variable gain amplifier stages provide up to 80 dB of gain control, allowing the board to acquire very low level signals. An on-board anti-aliasing filter preceding the A/D converter restricts its input bandwidth to approximately 10 MHz in Model 6425, or 30 MHz in Model 6470.

For systems in which the input signal is already bandlimited, the on board anti-aliasing filter can be bypassed. Other features include AC or DC input signal coupling or input signal disconnect.

A/D Conversion

Depending on model, the A/D converter has resolution of 12 or 10 bits. The parallel data and the sampling clock are delivered through a front panel connector. Custom output configurations are easily accommodated through the use of a mezzanine output driver assembly. Both TTL and ECL interfaces are available.

VME Interface

The VMEbus interface is used only for control of the gain and preselect filter stages. These features are controlled by registers which are memory mapped as slave devices in VMEbus address space.

Sampling Control

An external input sampling clock can be supplied through a front panel BNC connector, or the internal crystal oscillator can be selected.

Specifications

Input: single-ended, ± 1.0 mV to ± 1.5 V full scale, 50 ohm input impedance; AC coupling (100 Hz cutoff), DC coupling, or input disconnect (ground)

Preselect low pass filter: 2nd order LC filter, 12 dB/oct rolloff, or bypass; Model 6425: 1, 3, 5 MHz cutoff frequencies; Model 6470: 2, 5, 12 MHz cutoff frequencies

Preselect high pass filter: 2nd order LC filter, 12 dB/oct rolloff, or bypass; Model 6425: 2, 4, 7 MHz cutoff frequencies; Model 6470: 3, 8, 18 MHz cutoff frequencies

Amplifiers: two variable gain amplifiers provide -10 dB to $+30$ dB gain each

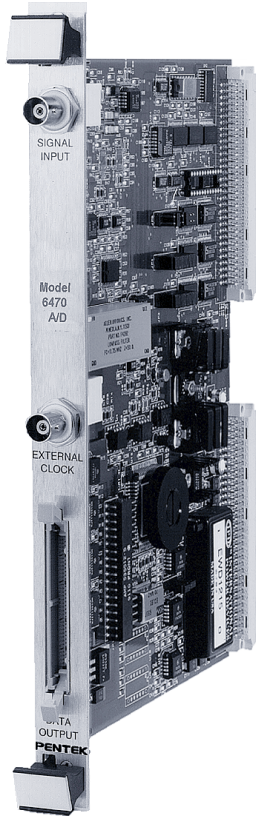
Anti-aliasing filter: Model 6425: DC to 11.5 MHz, ± 1.5 dB passband flatness, 13.5 MHz stopband with > 55 dB attenuation; Model 6470: DC to 32 MHz, ± 1.5 dB passband flatness, 40 MHz stopband with > 55 dB attenuation

A/D converter: Model 6425: 12 bits, 25 MHz max. sampling rate (AD 9032); harmonic distortion < -74 dBc, IM distortion < -77 dBc, SNR > 64 dB; Model 6470: 10 bits, 70 MHz max. sampling rate (AD 9060); harmonic distortion < -59 dBc, IM distortion < -70 dBc, SNR > 55 dB

Sampling clock: internal 25 MHz or 70 MHz crystal oscillator, or one of three user-installable DIP TTL oscillators; external TTL clock, front panel BNC

Power: 1.0 A at +5 V; 0.75 A at +12 V; 1.5 A at -12 V

Size: standard 6U VMEbus board, single slot; board 160 mm (6.3 in.) x 233.5 mm (9.2 in.), panel 0.8 in. wide



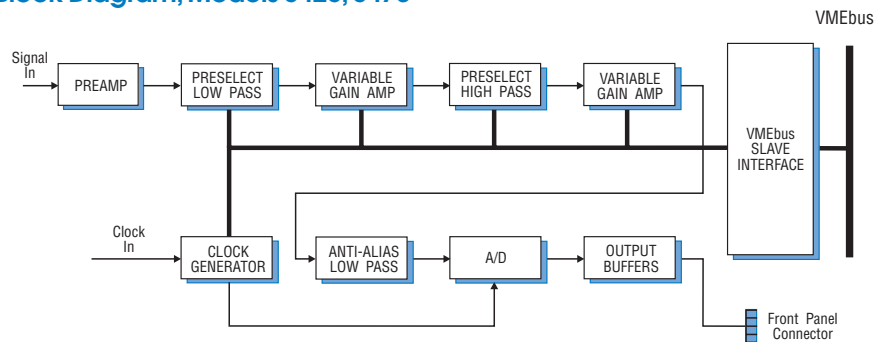
Features

- Front ends for the Pentek digital receivers
- Programmable RF gain and preselect filters
- Front panel parallel TTL or ECL output
- Internal or external sampling clock to 25 MHz or 70 MHz

Ordering Information

Model	Description
6425	12-bit 25 MHz A/D Converter TTL outputs
Option:	
-001	ECL differential outputs
6470	10-bit 70 MHz A/D Converter ECL differential outputs
Option:	
-001	TTL outputs

Block Diagram, Models 6425, 6470



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