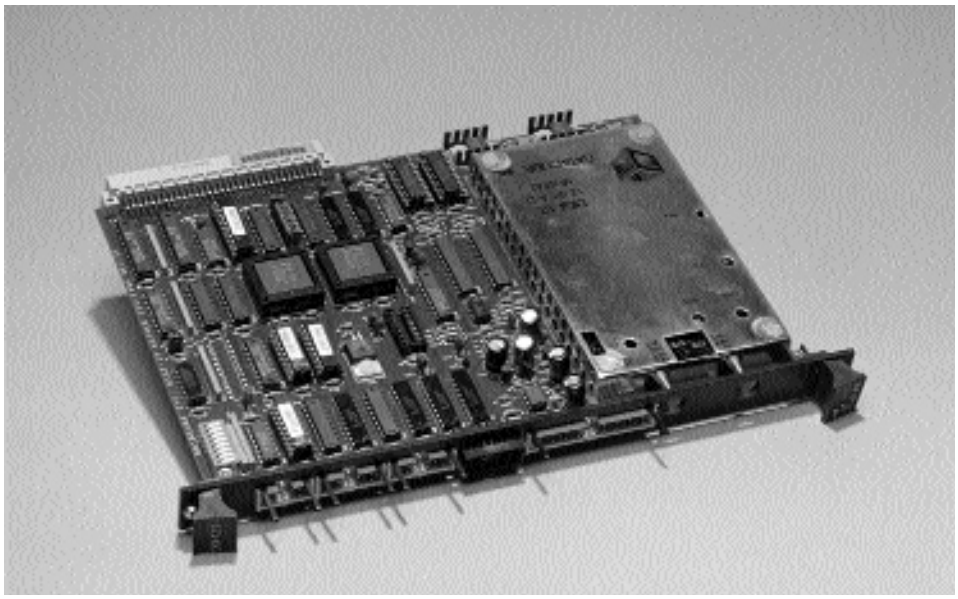
12-bit, 20 MHz Analog to Digital Conversion Module

DIGI-12/20 is a 12-bit, 20 MHz analog to digital (A/D) conversion module. DIGI-12/20 digitizes the output of arbitrary line and area sensors. The clock generator, video timing, and PR timing sections of the MaxVideo 250 or 200's Acquire Digital (AD) device are used. DIGI-12/20 outputs 12-bit data via a 34-pin ribbon cable that is compatible with the digital receiver port on the AD device. Clocking is derived from the AD device and input through the P12 connector of DIGI-12/20.

The DIGI-12/20's input signal is 1.0 V nominal, negative sync video which can be either single ended (75 ohm) or differential (124 ohm). The input signal can be either grounded or floating. The input is DC coupled for maximum precision.

The A/D converter has 12-bit resolution. It has a conversion rate of 20 MHz and a minimum linearity of 11 bits.



The DIGI-12/20 analog to digital conversion module for MaxVideo 250/200

Functional Overview

Programmable Offset Amp
The offset is software selectable, programmable in 4096 steps.

DC Clamp
The DC clamp has a less than 1% variation over an input range of 10% to 90% APL. The clamp can be disabled to allow for DC coupling throughout.

Input Signal to Noise Ratio
The input signal to noise ratio is greater than or equal to 63 dB.

Input Stage Precision
The accuracy of the input stage precision is 1% gain over temperature and power supply variations.

Anti-Aliasing Filter
The filter is a fixed 8.6 MHz cutoff frequency 5 pole filter with a phase delay compensation stage.

Look-Up Table
A 12- to 16-bit LUT is provided to allow barrel shifting, two's complement conversion, linearity correction, or any other function.

Digital Outputs
The digitized data is output via two MAXbus output connectors and is also output to a 34-pin connector compatible with 16-bit digital input.

Timing
There are two possible sources for the A/D clock: P3 Bus Dot Clock (DC) and external input. The external input is typically used for receiving clock from the AD device. Clock selection is software selectable.

Specifications

12-bit A/D
- ±1 LSB minimum linearity
- 63 dB signal to noise ratio
- 4096 step programmable offset
- Various input and grounding configurations
- 12x16 LUT for data formatting

VMEbus Specifications
- Capable of D:16, A:24 addressing
- Not a VMEbus interrupter
- VMEbus slave

Electrical Specifications
All voltages are ±5%
- 1.0 A @ +12 V
- 2.0 A @ +5 V
- 1.0 A @ -12 V

Environmental Specifications
- Operating Temperature: 0° to 55° C (32° to 131° F)
- Storage Temperature: -40° to 100° C (-40° to 212° F)
- Humidity: 10% to 90% relative humidity (non-condensing)

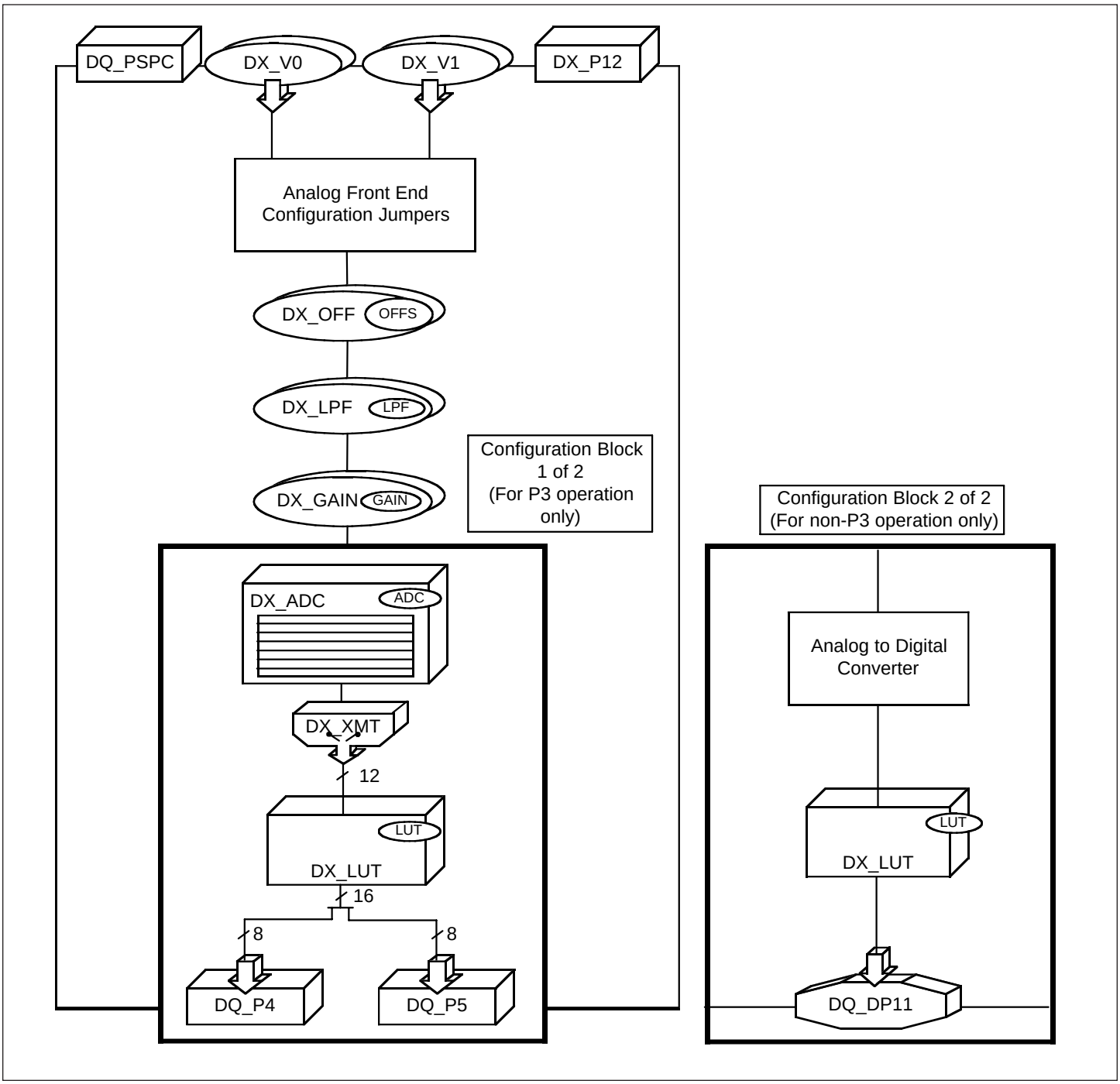
Physical Specification
DIGI-12/20 is a dual height VMEbus compatible (Eurocard) module with 6U Form Factor.

- Height: 6.30 inches (160 mm)
- Length: 9.19 inches (233 mm)
- Width: 0.80 inches (20.3 mm)

Additional Information

For related product information, refer to the following Datacube literature:

MaxVideo 250 Data Sheet
Acquisition Modules Data Sheet



DIGI-12/20 Element Flow Diagram