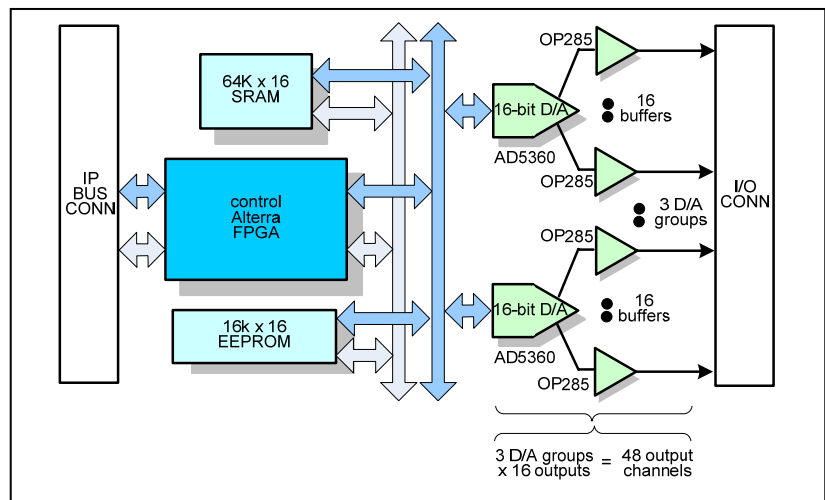


IP 16 bit D/A converter, 3x16 output channels

Features

- 16-bit AD5360 D/A converter
- Settling time of $\leq 20\mu\text{sec}$ (50Kcps)
- 3 D/A's each with 16 channels output
- Nominal output voltage range of -10VDC to +10VDC
- Multiple output spans available
- Temperature monitoring function
- System calibration function allowing user-programmable offset and gain for each channel
- Channel grouping and addressing features; the D/A converter is divided into 2 groups of 8 D/A's adjusted independently by offset D/A
- Data error checking feature
- Simultaneous or single update of D/A converter outputs
- Power on reset to 0VDC
- Buffered driver output 2 stages
- Ping-pong output register for waveform generation
- External synchronization update possible
- Power on reset to 0VDC
- Two's complement or straight binary data to D/A converter
- 64Kx16 data SRAM support for waveform generation
- 8k x 8 Flash AT28C64 EEPROM for gain/offset correction data and ID board data
- 8 or 32 MHz clock
- 2 interrupts and 2 slave DMA IP bus lines
- VITA 4 compliant



Block Diagram and Operational Overview

IP-DAC-350-48CH is a single size IP board with a total of 48 voltage output D/A. Each output is followed by a buffer able to provide +/-10 mA.

When using the gain and offset correction register, the D/A converters are accurate to 1 LSB over the industrial temperature range (4 LSB without correction).

Special function code allows global updates of all channels or by a group of eight channels at a time. Standard ping-pong output registers for each channel or optional data RAM allows waveform generation with minimum processor involvement.

An internal register sets the sampling rate of the internal sampling rate generator. The internal sampling rate generator is based on a 32 MHz oscillator on the card. The sampling rate is set by the following formula where N is the contents of this register.

$$\text{SamplingRate} = (32000000)/2N$$

Since the maximum sampling rate supported by the D/A converters on the **IP-DAC-350-48CH** is 50 KHz, the smallest value for N should be 620.

The card operates in one of 3 modes:

- State machine providing automatic update and load on sampling clock.
- Manual load with update on sampling clock
- Manual load and update

Application:

This is a perfect solution for:

- Process control,
- Industrial control, or
- Precision instrumentation
- Level setting in automatic test equipment
- Variable optical attenuators
- Optical line cards
- Software gain adjustment
- Direct digital waveform generation
- Automated test equipment

AD5360 D/A Device Specifications:

- 16-bit, monotonic D/A converter
- 16 output channels per D/A, 3 D/A's total
- 20µsec settling time (50K conversions/sec) full-scale change
- Relative accuracy ±4 LSB max
- Zero scale error and full scale error 1 LSB typical after calibration
- Differential nonlinearity of ±1 LSB max
- Span error of offset D/A converter ±75mV max
- Slew rate 1 V/µsec typical
- Channel-to-channel isolation 100dB typical
- D/A-to-D/A crosstalk 10 nV-sec typical
- Nominal output range of -10VDC to +10VDC
- Load current ±1mA max
- Glitch impulse <20nV-sec
- D/A output amplified and buffered on-chip with respect to external SIGGNDx input
- D/A outputs can be switched to SIGGNDx

OP285 Driver Output Specifications:

- Inherent short-circuit protection to ground of 40mA
- Low offset voltage 250uV laser-trimmed
- High slew rate 22V/µsec
- Low offset current 2nA
- Low distortion 0.0006%
- Wide bandwidth 9MHz

Industry Pack Specifications:

- Meets ANSI/VITA 4-1995
- 8/32 MHz synchronous operation
- Supports ID, 128 byte I/O, interrupt. & 8 Mbyte memory spaces
- 2 Interrupts per module
- Two passive DMA channels are possible.
- Hardware self timed per IP module
- Triggered via system reset and software control
- Jumper or software time-out function
- 5, +/-12 volt reset-able fuse per IP

Mechanical: Environmental:

- Size – VITA 4 compliant
1.8" x 3.9" or 46 mm x 99 mm
- Power – 1.0 watt
- Vibration – 0.5G, 20-2000 Hz rand
- Shock – 20G, 11 msec, ½ sine
- Weight – tbd
- MTBF – >250,000 hours

Operating Environment:

- Operating temperature
Commercial: 0 to +70 °C
Optional: -25 °C to +80 °C
- Non-operating: -40 °C to +85 °C
- Airflow requirement – 5 CFM
- Humidity – 5 to 90% (non-cond)
- Altitude – 0 to 10,000 feet



Ordering Information:

Part number: IP-DAC-350-48CH 48 channel 16 bit D/A Converter
 Industry Pack Module
 IP-DAC-350-48CH -I Same as above with -40 to +8 C

Optional Accessories:

Part number: TB-50-HDR 50 pin terminal block and 1 meter flat ribbon cable
 CBL-50-HDR 50 pin, 1 meter flat ribbon cable, IDC header connector