Summary

This module allows outputting waveforms at a continuous compounded rate of 500 Ksps. A state machine is extracting the output data from a 1 Mword FIFO buffer. The buffer space is only used by the channels updated by the state machine, i.e. if only 16 channels use the FIFO, each has about 64 kSamples.

Writing to the FIFO supports DMA access, allowing fast transfer rates to the board.

The onboard state machine allows recycling the FIFO data to produce a continuous recurrent waveform with no processor intervention once the data has been input in the FIFO

Extra information in the data words contains the destination channel as well as range and gain and instructions for the state machine. These instructions allow smooth changes from one set of data to the next one. This scheme also supports faster refresh rates on some channels compared to others.

The module comes in 2

Software Programmable 2 μSecond DACs
32 Channel 16 bit DAC with programmable outputs

PMC-SOFTDAC-32F

Features

- 2 μS settling time, 0-5v range
- Six Programmable Output Ranges per channel
- Unipolar: 0V to 5V, 0V to 10V
- Bipolar Mode: ±5V, ±10V, ±2.5V,–2.5V to 7.5V, +-10 mA continous, +-30 mA max
- 1LSB Max DNL and INL Over the Industrial Temperature Range
- 1 MWords x 32 bits dynamically allocatable between channels
- 500 KSPS throughput
- Power-On Reset to 0V
- Flash ram for configuration file
- Two stage buffers
- Global output buffer w/ internal or external triggering
- 4 User Digital I/O, (TTL levels, outputs: 48 mA sinking, 12 mA sourcing)
- Optional A/D for reading back

Applications

- Process Control and Industrial Automation
- Precision Instrumentation

- Direct Digital Waveform Generation
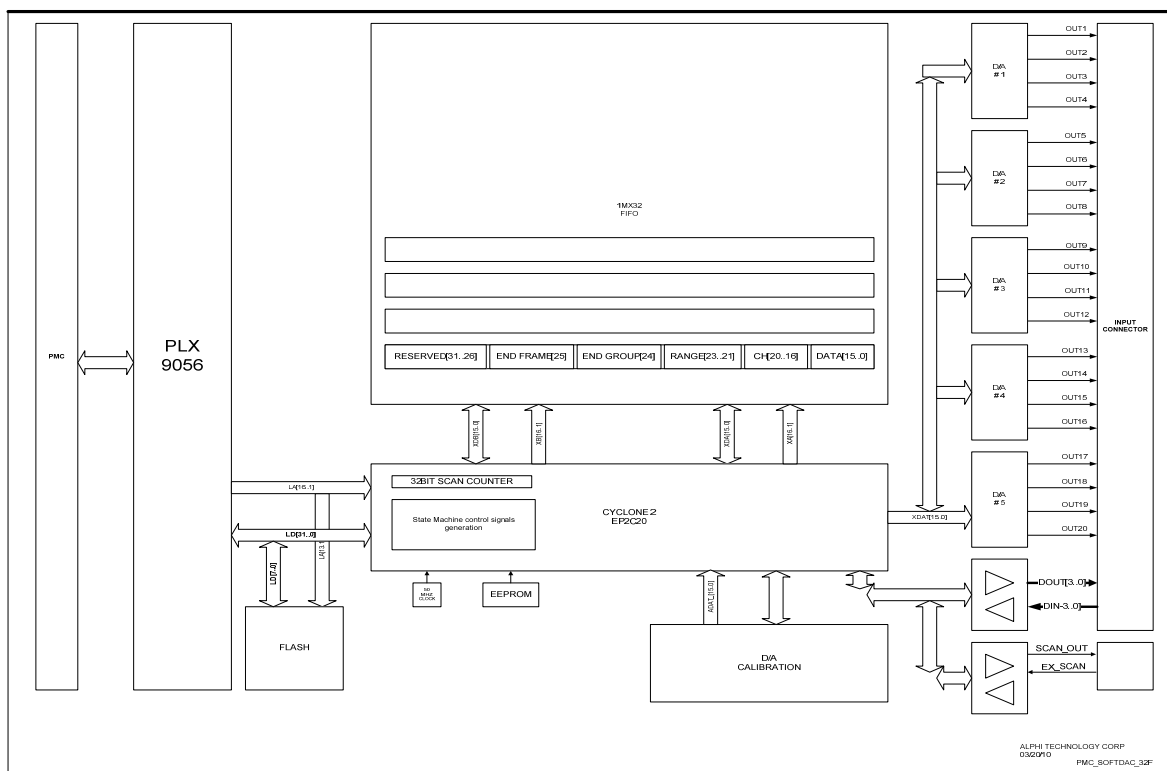- Software-Controlled Gain Adjustment

PMC interface

- PLX 9056
- VIO 3.3/5.0 Volts
- 32 Bit, 33/66 MHz
- Interrupts
- DMA for maximum throughput from the host

Operating: Environmental

- Operating temperature
    Commercial: 0 to +55 °C
    Optional: -40°C to +85°C
- Non-operating: -55°C to 95 °C
- Airflow requirement: .5 CFM
- Humidity: 5 to 90% (non-cond.)
- Altitude: 0 to 10'000 ft

Mechanical: Environmental

- Power: +5/+3.3V, +12, -12 volts
- Vibration: 0.5G RMS
    20-2000 Hz rand
- Shock: 20 G, 11 ms, ½ sine
- Weight: 3 oz.
- MTBF: >250000 hours

Block diagram labels:

PMC — PLX 9056 — 1MX32 FIFO

RESERVED[31..26] | END FRAME[25] | END GROUP[24] | RANGE[23..21] | CH[20..16] | DATA[15..0]

32 BIT SCAN COUNTER — State Machine control signals generation — CYCLONE 2 EP2C20

NO MAX CLOCK — EEPROM — FLASH — D/A CALIBRATION

L[15..1] — LD[31..0] — LD[7..0]

D/A #1, D/A #2, D/A #3, D/A #4, D/A #5 — INPUT CONNECTOR

OUT1 … OUT20

DOUT[3..0] — DIN[3..0] — SCAN_OUT — EX_SCAN

ALPHI TECHNOLOGY CORP
03/2010
PMC_SOFTDAC_32F

ORDERING INFORMATION

Part Number:	PMC-SoftDAC-32M	32 Channel with Memory DAC,output buffers, 2 microsecond
	PMCSoftDAC-32M-I	Same as above with -40 to +85 C
	PMCSoftDAC-32M18	18 Channel with Memory DAC,output buffers, 2 microsecond
	PMCSoftDAC-32M18-I	Same as above with -40 to +85 C

Optional Accessories

Part Number :	TB-68-SCSI	68 pin terminal block and 1meter flat ribbon cable
	CBL-68-SCSI	68 pin, 1 meter flat ribbon cable, IDC header connector