

# Queued A/D Converter

## Summary

The queued analog-to-digital converter (QADC) is a 10-bit, unipolar, successive approximation converter. Up to eight analog input channels can be supported using internal multiplexing.

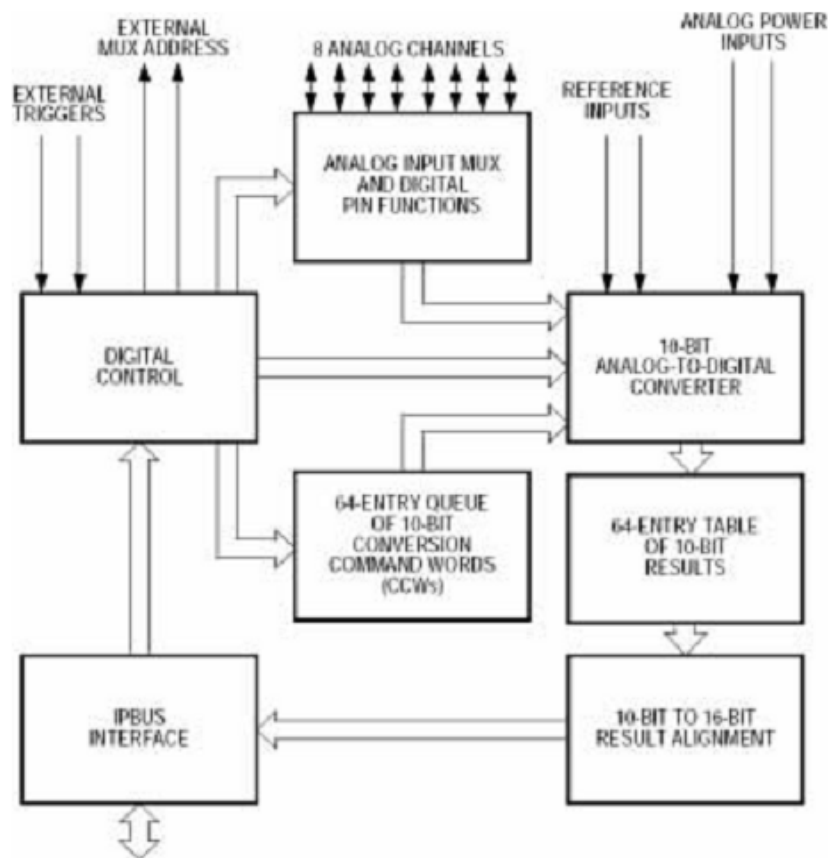
The QADC consists of an analog block and a digital control block.

The analog block includes input pins, an analog multiplexer and analog sample and hold circuits.

The analog conversion is performed by the digital-to-analog converter (DAC) resistor-capacitor (RC) array and a high-gain comparator.

The digital control block contains queue control logic to sequence the conversion process and interrupt generation logic. Also included are a periodic/interval timer, various control and status registers, a conversion command word (CCW) table and a result table.

A bus interface unit (BIU) provides access to registers that configure the QADC, control the analog-to-digital converter and queue mechanism, and present formatted conversion results.



**QADC Block Diagram**

## Features

- Internal sample and hold
- Up to eight analog input channels using internal multiplexing
- Programmable input sample time for various source impedances
- Two conversion command word (CCW) queues with a total of 64 entries for setting conversion parameters of each A/D conversion
- Sub queues possible using pause mechanism
- Queue complete and pause interrupts available on both queues
- Queue pointers indicating current location for each queue
- Automated queue modes initiated by:
  - External edge trigger and gated trigger
  - Periodic/interval timer, within QADC module (queues 1 and 2)
  - Software command
- Single scan or continuous scan of queues
- 64 result registers
- Output data readable in three formats:
  - Right-justified unsigned
  - Left-justified signed
  - Left-justified unsigned

*To obtain more information about the AD or other C\*Core™ products, please contact the C\*Core Technology Co., Ltd. by phone: 0512-68091375, email: [support@china-core.com](mailto:support@china-core.com) or web: <http://www.china-core.com>.*

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