C2000 ADC Video Series

Analog-to-Digital Converter (ADC) Integration

TEXAS INSTRUMENTS

ADC Integration

- C2000 devices have multiple ADCs (ADC-A, ADC-B, ADC-C, etc.)

- 12/16-bit and single-ended or differential depending on device

- Some devices share inputs pins and reference pins
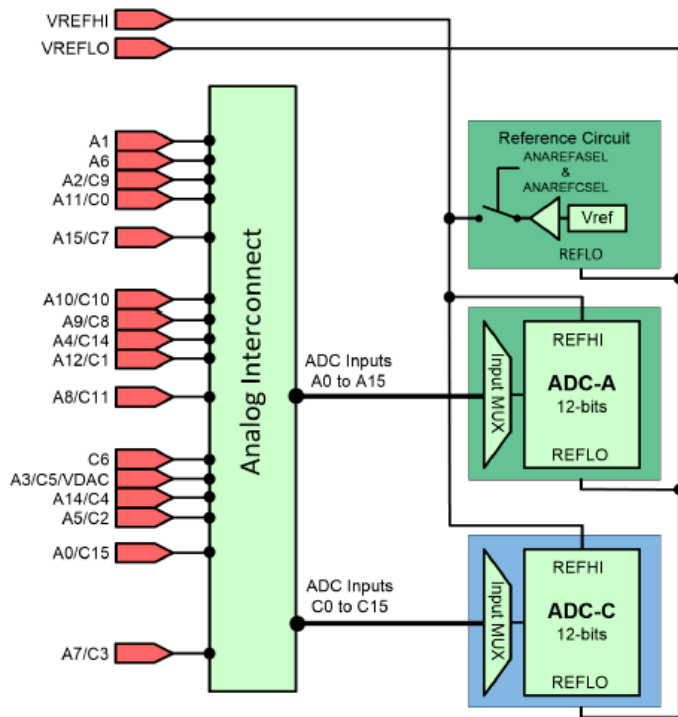
- The Analog Subsystem integrates the ADCs with supporting resources that are required for operation

TEXAS INSTRUMENTS

ADC Integration: Input Signals

- Input signals are named for the ADC resource that is mapped to the pin

- Pin A1 is mapped to Channel 1 of ADC-A

- Pin C6 is mapped to Channel 6 of ADC-C
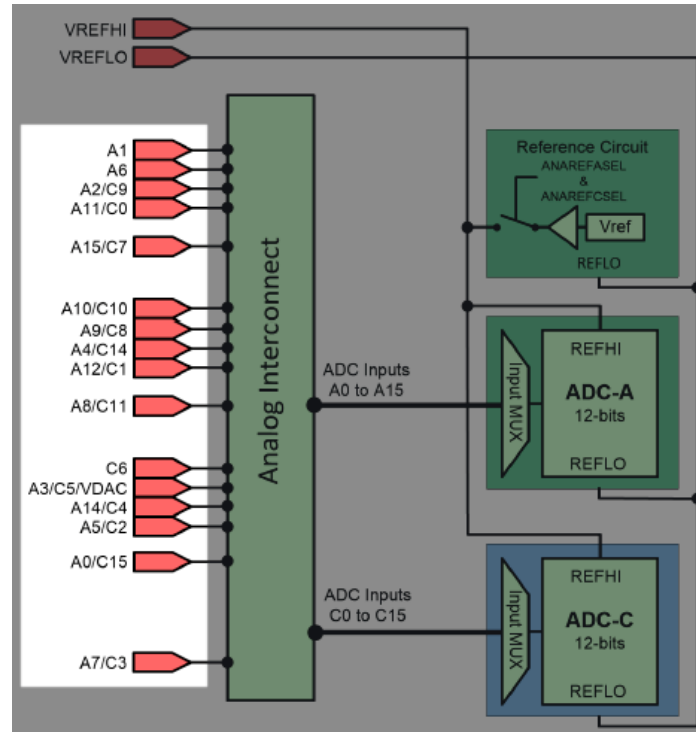
- Pin A2/C9 is dual mapped to both:
  - Ch 2 of ADC-A
  - Ch 9 of ADC-C

- There is no isolation between ADC inputs for multi-mapped pins

TEXAS INSTRUMENTS

ADC Integration: Reference Voltage

- The full-scale range of each ADC is determined by its reference voltage (V_{REF}), defined by VREFHI and VREFLO
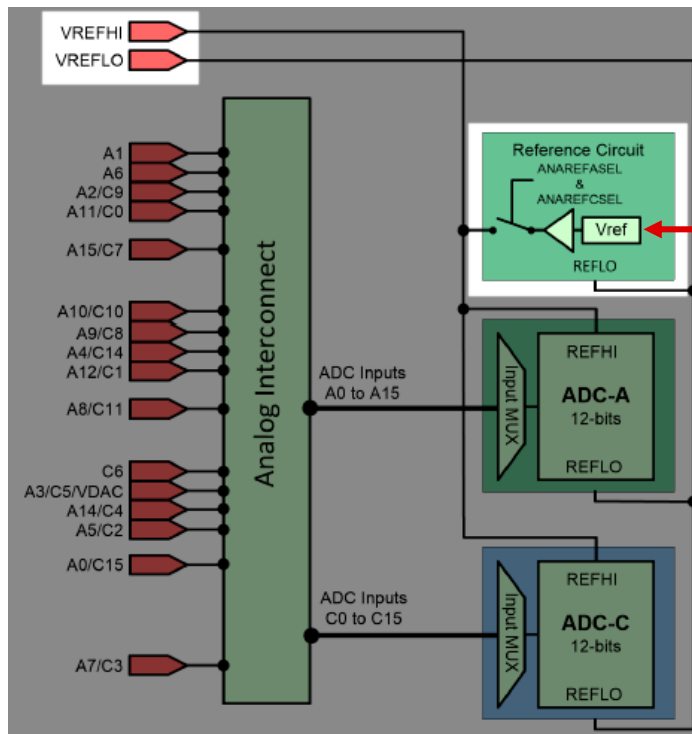
- V_{REF} can be supplied externally or internally

- Proper decoupling is required between VREFHI and VREFLO

4

TEXAS INSTRUMENTS

ADC Resources

- Analog Subsystem Training Module and Guided Lab in C2000 Academy

- TI Precision Labs ADC Series

- ADC Application Reports
  - Input Signal Circuit Design
  - Charge Sharing Circuit Design
  - Simulating Charge Sharing Circuits
  - Mitigating Channel-to-Channel Cross-talk

TEXAS INSTRUMENTS