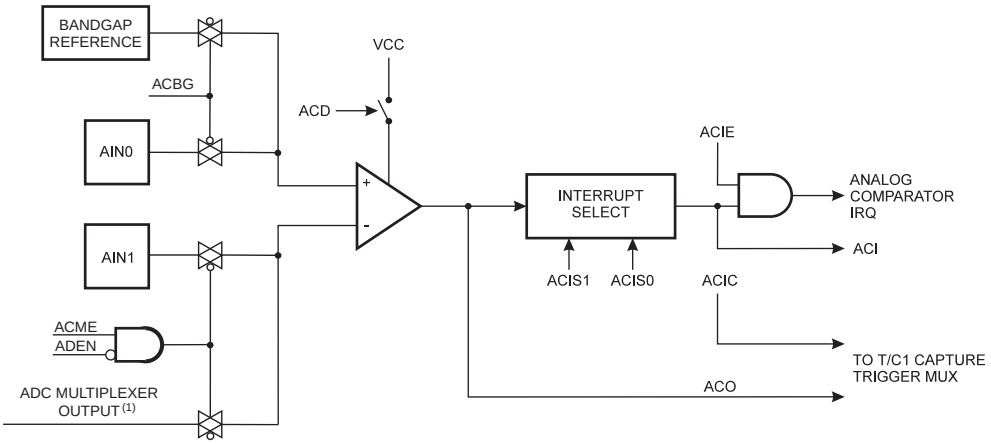
20. Analog Comparator

20.1 Overview

The Analog Comparator compares the input values on the positive pin AIN0 and negative pin AIN1. When the voltage on the positive pin AIN0 is higher than the voltage on the negative pin AIN1, the Analog Comparator output, ACO, is set. The comparator's output can be set to trigger the Timer/Counter1 Input Capture function. In addition, the comparator can trigger a separate interrupt, exclusive to the Analog Comparator. The user can select Interrupt triggering on comparator output rise, fall or toggle. A block diagram of the comparator and its surrounding logic is shown in Figure 20-1.

The Power Reduction ADC bit, PRADC, in "Minimizing Power Consumption" on page 42 must be disabled by writing a logical zero to be able to use the ADC input MUX.

Figure 20-1. Analog Comparator Block Diagram[2]



Notes: 1. See Table 20-1 on page 247.
2. Refer to Figure 1-1 on page 2 and Table 11-9 on page 88 for Analog Comparator pin placement.

20.2 Analog Comparator Multiplexed Input

It is possible to select any of the ADC7..0 pins to replace the negative input to the Analog Comparator. The ADC multiplexer is used to select this input, and consequently, the ADC must be switched off to utilize this feature. If the Analog Comparator Multiplexer Enable bit (ACME in ADCSRB) is set and the ADC is switched off (ADEN in ADCSRA is zero), MUX2..0 in ADMUX select the input pin to replace the negative input to the Analog Comparator, as shown in Table 20-1. If ACME is cleared or ADEN is set, AIN1 is applied to the negative input to the Analog Comparator