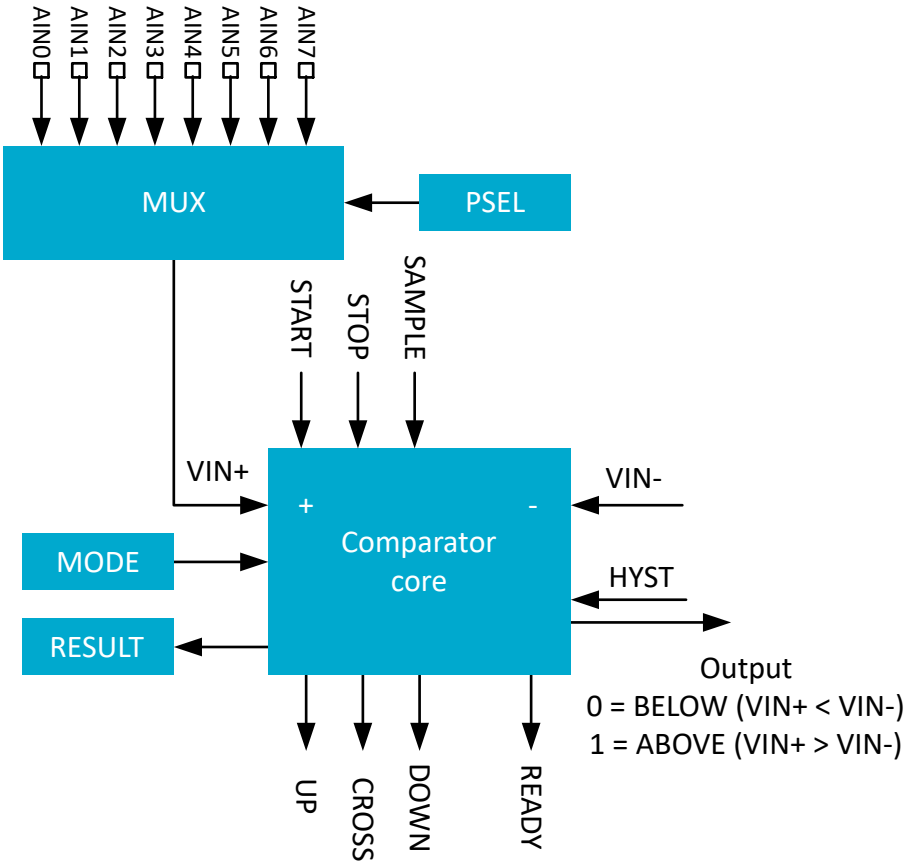

Figure 51: COMP overview

8.5.1 START and STOP tasks

Once enabled through register ENABLE, COMP is started by triggering the START task and stopped by triggering the STOP task. COMP will generate a READY event to indicate when it is ready for use and the output is correct. The delay between START and READY is $t_{INT\_REF,START}$ when an internal reference is selected, or $t_{COMP,START}$ if an external reference is used. When the COMP peripheral is started, events will be generated every time VIN+ crosses VIN-.

8.5.2 Operation modes

COMP can be configured to operate in the two main operation modes, differential mode and single-ended mode. See register MODE for more information. In both operation modes, COMP can operate in different speed and power consumption modes (low-power to high-speed). High-speed mode will consume more power compared to low-power mode. Low-power mode will result in a slower response time compared to high-speed mode.

Use register PSEL to select any of the **AIN[0..7]** pins as the VIN+ input. The COMP operation mode does not matter. The source of VIN- depends on which operation mode is used.

- Differential mode – Derived directly from pins **AIN[0..7]**.
- Single-ended mode – Derived from VREF. VREF can be derived from VDD, **AIN[0..7]**, or internal 1.2 V reference.

The selected analog pins will be acquired by the comparator once it is enabled.

An optional hysteresis on VIN+ and VIN- can be enabled when the module is used in differential mode through the register HYST. In single-ended mode, VUP and VDOWN thresholds can be set to implement