RCU State Diagram

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States and transitions:

- **IDLE** (rcving=0, w_enable=0, r_error=0)
  - d_edge=0 (self loop)
  - d_edge=1 → START_RCV
- **START_RCV** (rcving=1, w_enable=0, r_error=0)
  - byte_recevied=1 → CHECK_SYNC
- **CHECK_SYNC** (rcving=1, w_enable=0, r_error=0)
  - rcv_data!=SYNC → EIDLE
  - rcv_data==SYNC → CONT_RCV1
- **EIDLE** (rcving=1, w_enable=0, r_error=1)
  - eop=0 (self loop)
  - eop=1 → IDLE
- **CONT_RCV1** (rcving=1, w_enable=0, r_error=0)
  - byte_received=0 (self loop)
  - eop=1 and byte_received =0 → CONT_RCV2
  - eop=0 and byte_received=1 → BYTE_RCV1
  - eop=1 and byte_received=1 → BYTE_RCV2
- **CONT_RCV2** (rcving=1, w_enable=0, r_error=0)
  - eop=1 → EIDLE
  - eop=0 → CONT_RCV1
- **BYTE_RCV1** (rcving=1, w_enable=1, r_error=0)
  - eop=1 → BYTE_RCV2
  - eop=0 → CONT_RCV1
- **BYTE_RCV2** (rcving=1, w_enable=0, r_error=0)
  - eop=1 → DELAY
  - eop=0 → CONT_RCV1
- **DELAY** (rcving=0, w_enable=0, r_error=0)
  - shift_enable =0 (self loop)
  - shift_enable =1 → IDLE