



PSE State Diagram (#289, #291, #296, #247)

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Comment #289 – “alt_pri” usage

- **Problem:**

- Descriptions of Primary/Secondary Alternative assignment in text (33.2.5.1.1) and PSE SD are inconsistent

- **Text:**

- “In any implementation, the behaviors of the Alternatives may be reversed as long as the roles are established in IDLE and shall be maintained in every other state.”

- **PSE SD:**

- The definition of alt_pri is assigned in IDLE and in TEST_MODE.
 - The assignment of alt_pri is forced to "a" in TEST_MODE, though the desired behavior is likely “user-defined”
 - When pingpong_en==TRUE, assignment of alt_pri in IDLE depends on previous value, but initial value of alt_pri is undefined

Comment #289 – “alt_pri” usage, cont’d

- **Observations:**

- alt_pri is never directly sampled in PSE SDs
 - Definition of the Primary and Secondary Alternatives, as used by related variables (eg, “pwr_app_pri”, “det_once_sec”), is an inferred behavior
- pingpong_en is only used to modify the usage of alt_pri

Comment #289 – “alt_pri” usage, cont’d

- **Remedy:**

- Remove alt_pri, pingpong_en from Type 3 and Type 4 PSE variables (33.2.5.9)
- Modify text in 33.2.5.1.1 as follows:
 - “In the Type 3 and Type 4 state diagram, Alternative A and Alternative B are depicted as serving distinct roles during 4-pair operation. In any implementation, the behaviors of the Alternatives may be reversed as long as the roles are established in IDLE or TEST_MODE and shall be maintained in every other state. In the state diagram, the alternatives are named the Primary Alternative and the Secondary Alternative.”
- Modify “pse_alternative” variable definition as follows:
 - “... both: The PSE uses both Alternative A and Alternative B. Assignment of Alternative A and Alternative B to Primary and Secondary Alternative is user-defined. See 33.2.5.1.1.”

Comment #291 – “SEMI_PWRON_*”

• Problem:

• SEMI_PWRON_* states...

- use “power_available” in a manner inconsistent with POWER_ON state.
- bypass POWER_DENIED

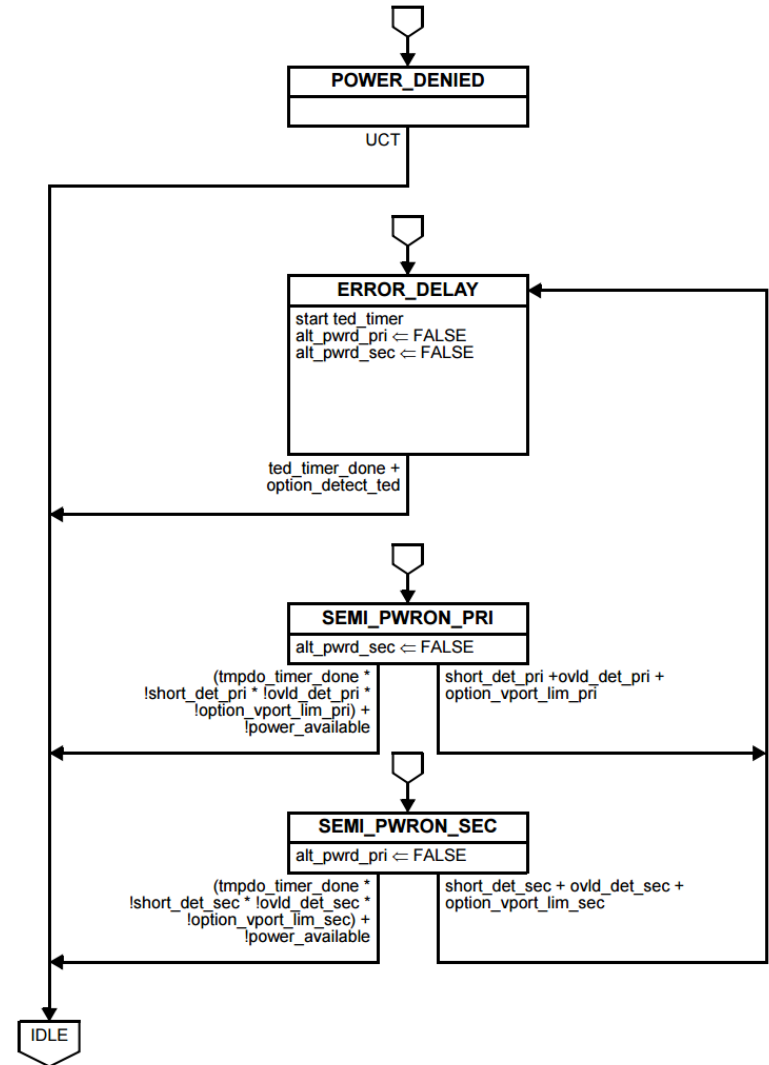
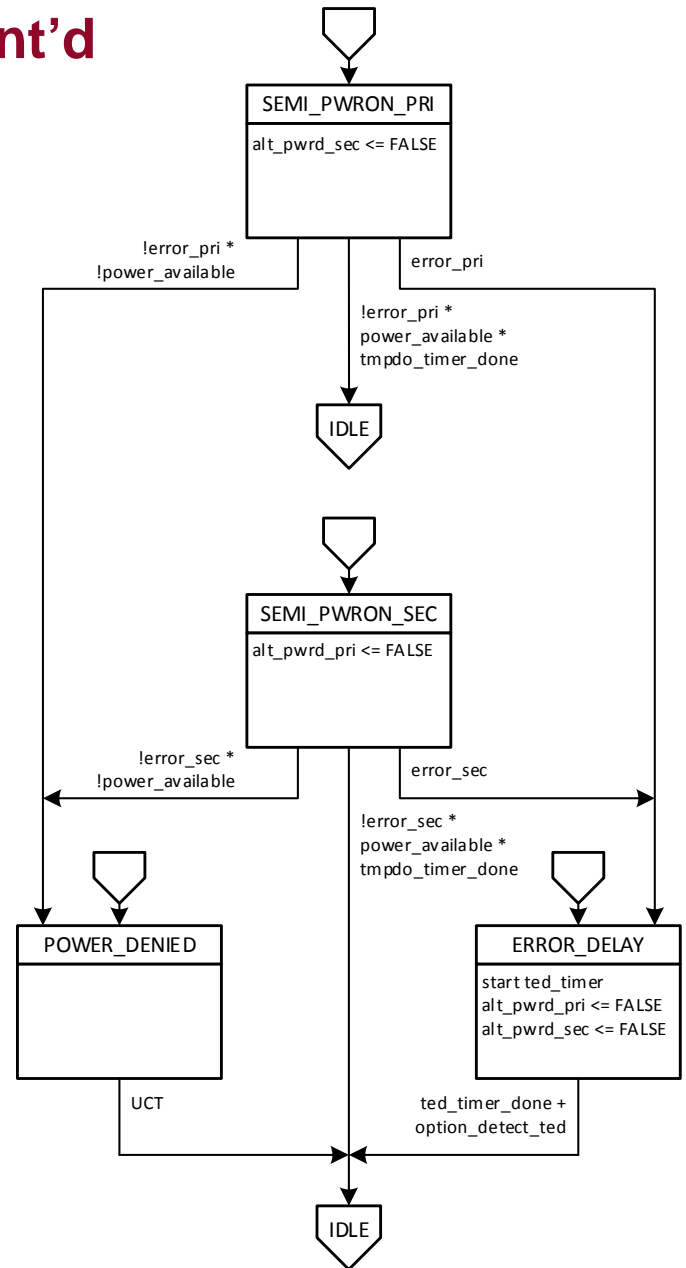


Figure 33–15—Type 3 and Type 4 top level PSE state diagram

Comment #291 – “SEMI_PWRON_*”, cont'd

- **Remedy:**

- Replace Figure 33-15 (P96) as follows



Comment #296 – “pwr_app_*/ I_{Port-2P}”

- **Problem:**

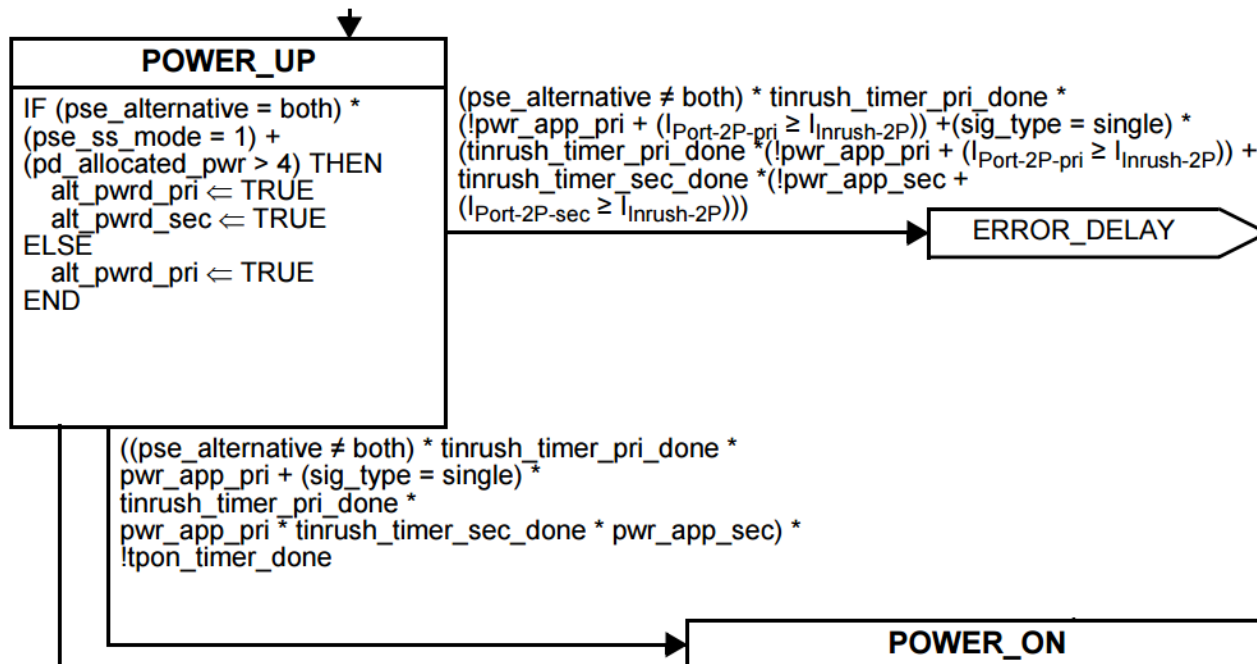
- Definition of pwr_app_*: “A variable indicating that the PSE...is not in a current limiting mode, and is operating beyond the POWER_UP requirements of 33.2.8.6.”
- It is redundant and incomplete to include the term “(I_{Port-2P-pri} >= I_{Inrush-2P})” in transition logic from POWER_UP_* to ERROR_DELAY_* when the PSE is already required to enforce I_{Inrush-2P} and I_{Inrush} per definition of “!pwr_app_*”

Comment #296 – “pwr_app_*/ I_{Port-2P}”, cont’d

• Observations: (1 of 2)

- Transition logic out of POWER_UP is difficult to parse; review

–Example: Check for “!tpon_timer_done” is absent from “ERROR_DELAY”, allowing for multi-true into ERROR_DELAY and IDLE.



Comment #296 – “pwr_app_*/ I_{Port-2P}”, cont’d

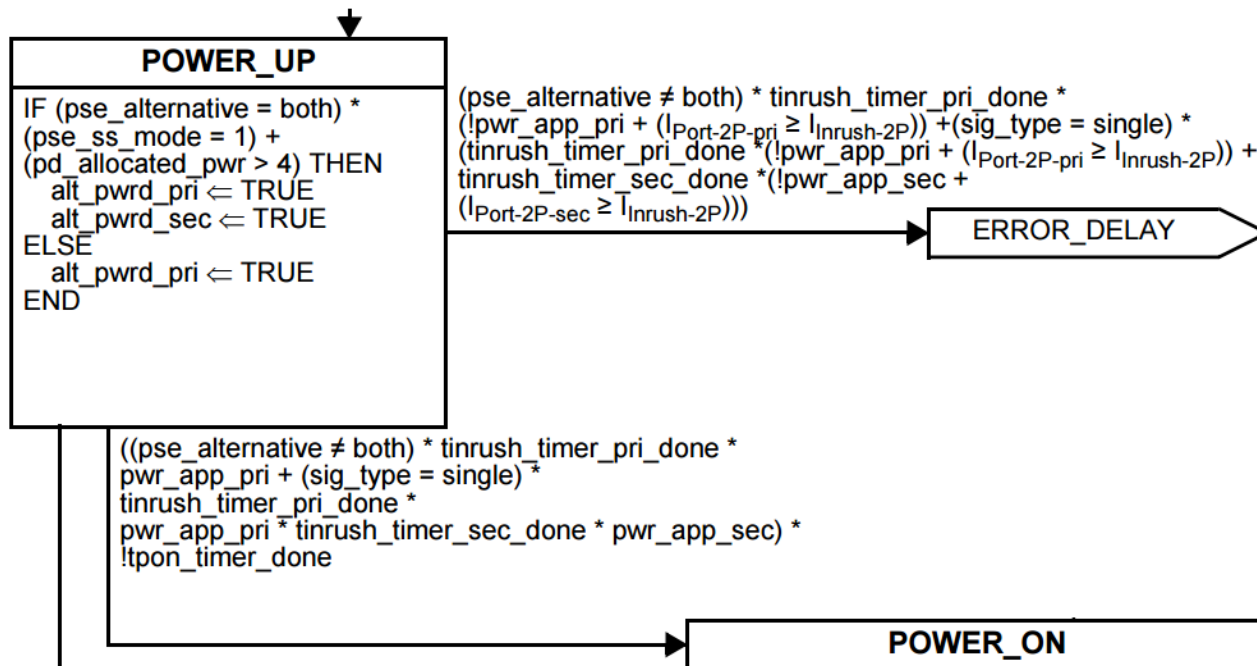
• Observations: (2 of 2)

- Use of “pse_alternative”, “sig_type” to identify powered pairsets is incomplete, superfluous

 - Example: does not take into consideration pse_ss_mode, which controls “alt_pwr*_ <= TRUE”

- Instead, let’s leverage PSE Inrush SD:

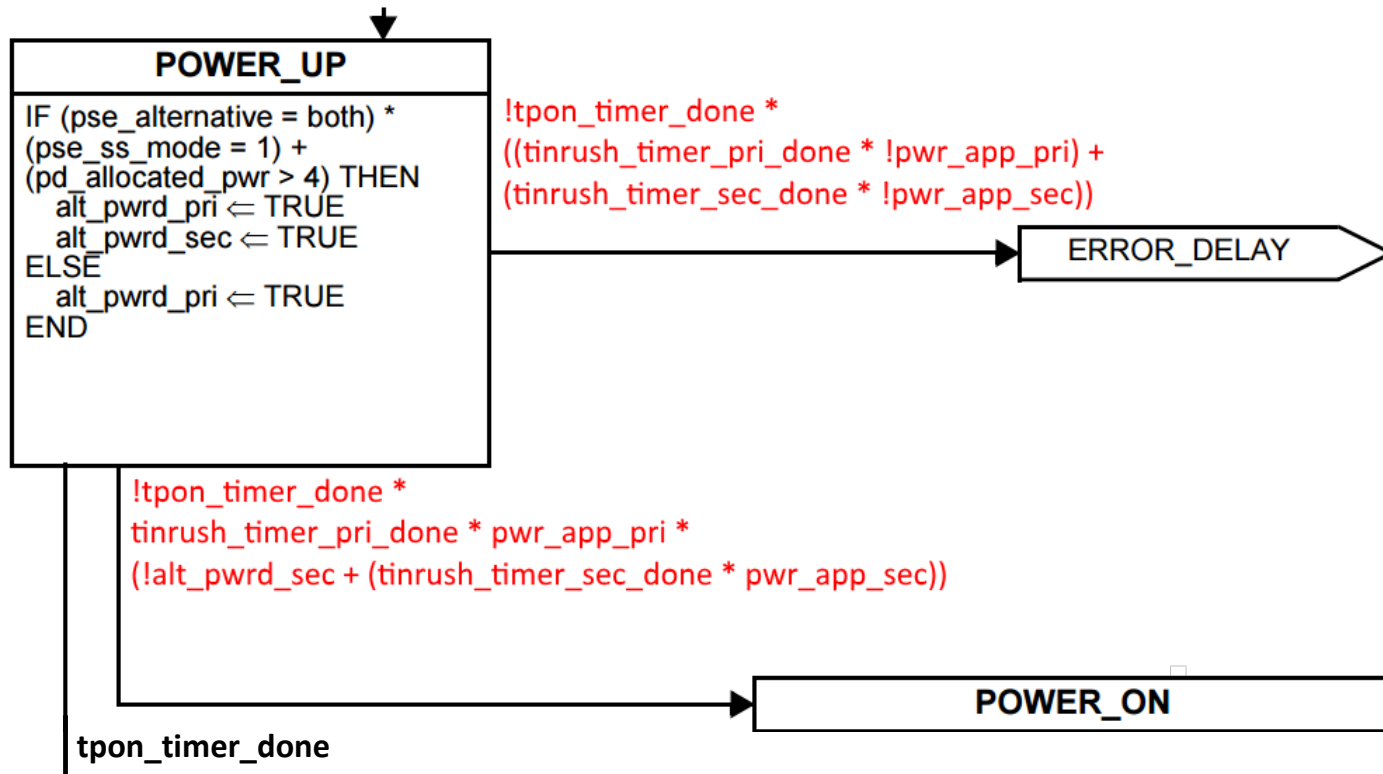
 - “tinrush_timer_*_done <= TRUE” only when the corresponding “alt_pwr*_ <= TRUE”



Comment #296 – “pwr_app_*/ I_{Port-2P}”, cont’d

- Remedy (1 of 2):

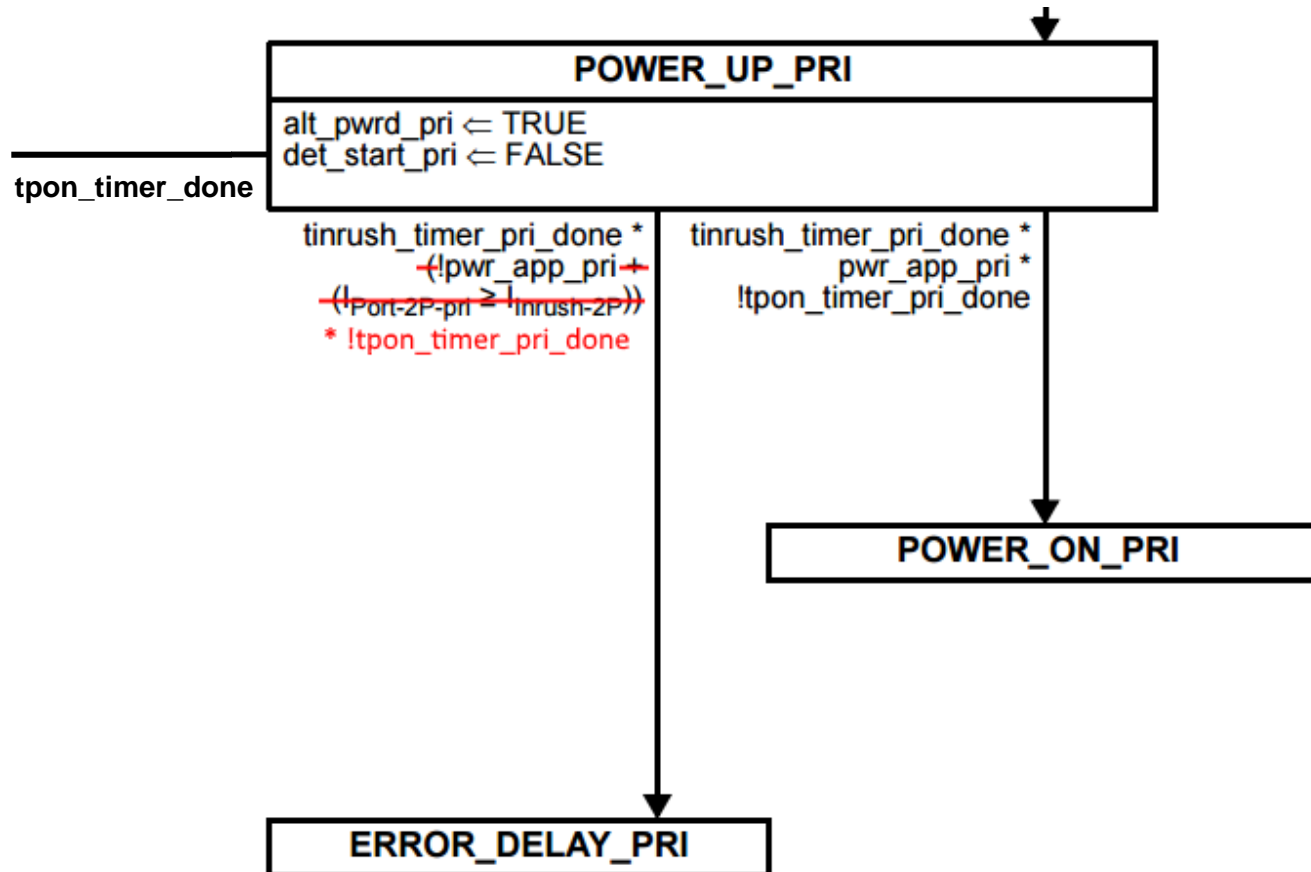
- Modify Figure 33–15 as follows



Comment #296 – “pwr_app_*/ I_{Port-2P}”, cont’d

- **Remedy (2 of 2):**

- Modify Figure 33–16 as follows and make similar changes to Figure 33–17



Comment #245, #247 – “option_tdbo_omit”

- **Problem:**

- A variable describing an optional behavior allowed by text is partially implemented in Type 3, Type 4 PSE SD

- **Observations:**

- There is no need to “optionally require an extended backoff time”; there is no “maximum backoff time”, in midspan mode or otherwise
- Therefore the default should be just to let “open_circuit” go the “fast” route
- The Type 1, Type 2 PSE SD does this, and therefore requires no modification

Comment #245, #247 – “option_tdbo_omit”, cont’d

- **Remedy:**

- Remove variable “option_tdbo_omit”
- Modify Figure 33–15 as follows (to match Type 1, Type 2 PSE SD)

