

Rules for state diagram variables (D3.1) v100

Info (not part of baseline)

Our state diagrams are inordinately complex, with a very large number of variables (current count 163 for the PSE). Given that our state diagrams mutated out of the Clause 33 state diagrams, we have low consistency in our variable descriptions. Specifically, it is unclear what the rules are pertaining to each variable:

- may it be set externally ?
- only in IDLE, or at any time ?
- is it a state diagram internal variable ?
- is it a variable that must be set according to certain rules (eg. mps_valid) ?

The current descriptions don't help. Some examples:

Variable	Description	Implicit rules
alt_done_pri	A variable used to coordinate...	reserved for the state diagram
alt_pri	A variable used to select...	this is a config variable
alt_pwrld_pri	A variable that controls...	also reserved for the state diagram
autoclass_enable	A control variable indicating...	configuration
class_4PID_mult_events_pri	A variable indicating...	configuration
det_once_sec	This variable indicates...	reserved for state diagram
MirroredPDAutoclassRequest	A control variable output...	reserved for state diagram
mps_valid	This variable indicates the presence or absence of a valid MPS...	mandatory set per requirements

If we don't specify the 'usage rules' of variables, the state diagram can be made to do basically anything.

Append new material at the end of 145.2.5.2 as follows:

145.2.5.2 Conventions

...

State diagram variables are categorized into types which indicate when and how the variable may be assigned. Table 145-5a lists the variable types and associated assignment rules.

Table 145-5a — Variable types and assignment rules

Variable type	Assignment rule
A-type	Variable may be assigned by the PSE at any time.
D-type	Variable is assigned by a mapping Table.
F-type	Variable is assigned by a function per the function's description
F/S-type	Variable is assigned by a function per the function's description or is assigned by an assignment in the state diagram.
I-type	Variable may be assigned by the PSE when the state diagram referred to in the variable description is in a permitted state.
P-type	Variable is a defined parameter.
R-type	Variable is to be assigned by the PSE in a particular manner.
S-type	Variable may only be assigned by an assignment statement in the state diagram. May not be set by the PSE.

145.2.5.4 Variables

Info (not part of baseline)

This baseline now assigns a variable type to each variable in Clause 145. This in many cases requires a text change of the variable description. Aim is to get everthing in the following form:

example_variable

S-type variable used to show an example.

Values:

FALSE: The example is false.

TRUE: The example is true.

In order not to have to duplicate the entire variable list, the baseline will list in tabular form the variable name and the designated variable type. For example:

Variable	Type	Additional instructions
alt_done_pri	S-type	—
alt_pri	I-type	Figure 145–13 in IDLE

Which would result in the following changes:

alt_done_pri

~~A variable~~ **S-type variable** used to coordinate the main single-signature state diagram with the semi-independent dual-signature state diagram for the Primary Alternative.

Values:

FALSE: The semi-independent state diagram is not ready to return to IDLE within the single-signature state diagram.

TRUE: The semi-independent state diagram is ready to return to IDLE within the single-signature state diagram.

alt_pri

~~A variable~~ **I-type variable, assignable when Figure 145–13 is in IDLE**, used to select which Alternative assumes the role of Primary Alternative in the state diagram.

Values:

a: Alternative A assumes the role of Primary Alternative. When operating over 4 pairs, Alternative B assumes the role of Secondary Alternative.

b: Alternative B assumes the role of Primary Alternative. When operating over 4 pairs, Alternative A assumes the role of Secondary Alternative.

Update the descriptions of the variables in 145.2.5.4 per the format in the information box as follows:

Variable	Type	Additional instructions
CC_DET_SEQ	I-type	Figure 145–13 in IDLE
alt_done_pri	S-type	
alt_done_sec	S-type	
alt_pri	I-type	Figure 145–13 in IDLE
alt_pwrd_pri	S-type	
alt_pwrd_sec	S-type	
autoclass_enable	I-type	Figure 145–13 in IDLE
class_4PID_mult_events_pri	I-type	Figure 145–13 in IDLE
class_4PID_mult_events_sec	I-type	Figure 145–13 in IDLE
det_once_sec	S-type	
det_start_pri	S-type	
det_start_sec	S-type	
det_temp	S-type	
dll_4PID	D-type	Table 145–40
error_condition	A-type	
error_condition_pri	A-type	
error_condition_sec	A-type	
iclass_lim_det	R-type	Requirements as described in variable description
iclass_lim_det_pri	R-type	Requirements as described in variable description

Variable	Type	Additional instructions
iclass_lim_det_sec	R-type	Requirements as described in variable description
MirroredPDAutoclassRequest	D-type	Table 145-40
mps_valid	R-type	Per requirements in 145.2.11
mps_valid_pri	R-type	Per requirements in 145.2.11
mps_valid_sec	R-type	Per requirements in 145.2.11
option_2ev	I-type	Figure 145-13 in IDLE
option_class_probe	I-type	Figure 145-13 in IDLE
option_detect_ted	I-type	Figure 145-13 in IDLE
option_detect_ted_pri	I-type	Figure 145-13 in IDLE
option_detect_ted_sec	I-type	Figure 145-13 in IDLE
option_probe_alt_sec	I-type	Figure 145-13 in IDLE
option_vport_lim	I-type	Figure 145-13 in IDLE
option_vport_lim_pri	I-type	Figure 145-13 in IDLE
option_vport_lim_sec	I-type	Figure 145-13 in IDLE
ovld_det_pri	R-type	Per requirements in 145.2.8.7
ovld_det_sec	R-type	Per requirements in 145.2.8.7
pd_4pair_cand	S-type	
pd_class_4PID_pri	F/S-type	
pd_class_4PID_sec	F/S-type	
pd_req_pwr	S-type	
power_available	A-type	
power_available_pri	A-type	
power_available_sec	A-type	
pse_allocated_pwr	F/S-type	
pse_alternative	I-type	Figure 145-13 in IDLE
pse_avail_pwr	I-type	Figure 145-13 in IDLE or CLASSIFICATION
pse_avail_pwr_pri	I-type	Figure 145-13 in IDLE or Figure 145-15 in CLASSIFICATION_PRI
pse_avail_pwr_sec	I-type	Figure 145-13 in IDLE or Figure 145-16 in CLASSIFICATION_SEC
pse_dll_capable	I-type	Figure 145-13 in IDLE
pse_dll_enable	S-type	
pse_enable	A-type	
pse_power_update	A-type	
pse_power_update_pri	A-type	
pse_power_update_sec	A-type	
pse_ready	A-type	
pse_reset	R-type	Requirements as described in variable description
pse_reset_pri	R-type	Requirements as described in variable description
pse_reset_sec	R-type	Requirements as described in variable description
pse_ss_mode	A-type	
pse_ss_mode_update	A-type	
pwr_app_pri	R-type	Requirements as described in variable description
pwr_app_sec	R-type	Requirements as described in variable description
semi_pwr_en	I-type	Figure 145-13 in IDLE or POWER_ON
short_det_pri	R-type	Note: local rules are vague.
short_det_sec	R-type	Note: local rules are vague.
sism	S-type	
temp_var	S-type	
temp_var_pri	S-type	
temp_var_sec	S-type	

145.2.5.6 Functions

Info (not part of baseline)

Variables returned by a function (and by functions alone) are F-type. The description of the function makes it clear how this variable is set.

Update the descriptions of the variables in 145.2.5.6 per the format in the information box as follows:

Function	Variable	Type	Additional instructions
do_autoclassification	pd_autoclass	F-type	
do_class_probe	pd_req_pwr	F/S-type	
do_class_probe_pri	pd_req_pwr_pri	F-type	
	pd_cls_4PID_pri	F/S-type	
do_class_probe_sec	pd_req_pwr_sec	F-type	
	pd_cls_4PID_sec	F/S-type	
do_classification	pd_class_sig	F-type	
do_classification_pri	pd_req_pwr_pri	F-type	
	pse_allocated_pwr_pri	F-type	
	pd_class_sig_pri	F-type	
do_classification_sec	pd_req_pwr_sec	F-type	
	pse_allocated_pwr_sec	F-type	
	pd_class_sig_sec	F-type	
do_cxn_chk	sig_type	F-type	
do_detect_pri	sig_pri	F-type	
do_detect_sec	sig_sec	F-type	
do_update_pse_allocated_pwr	pse_allocated_pwr	F/S-type	
do_update_pse_allocated_pwr_pri	pse_allocated_pwr_pri	F-type	
do_update_pse_allocated_pwr_sec	pse_allocated_pwr_sec	F-type	

145.3.3.3 Single-signature PD constants

Move pd_req_class to 145.3.3.4.

145.3.3.4 Single-signature variables

Update the descriptions of the variables in 145.3.3.2 per the format in the information box as follows:

Variable	Type	Additional instructions
pd_req_class	I-type	Figure 145–26 in IDLE
mdi_power_required	A-type	
nopower	S-type	
pd_acs_full_power	S-type	
pd_acs_req	S-type	
pd_autoclass_enable	I-type	Figure 145–26 in IDLE
pd_dll_capable	I-type	Figure 145–26 in IDLE
pd_dll_enable	S-type	
pd_max_power	S-type	
pd_reset	A-type	
PDAutoclassRequest	S-type	
present_class_sig_0	S-type	
present_class_sig_A	S-type	
present_class_sig_B	S-type	
present_det_sig	S-type	
present_mark_sig	S-type	
present_mps	S-type	
pse_assigned_class	F/S-type	
pse_power_level	S-type	
V _{Mark_th}	P-type	Mark event voltage threshold, defined in Table 145–26.
V _{PD}	P-type	Voltage at the PD PI as defined in 145.1.3.
V _{Off_PD}	P-type	PD power supply torn off voltage, defined in Table 145–29.
V _{On_PD}	P-type	PD power supply turn on voltage, defined in Table 145–29.
V _{Reset_th}	P-type	Reset voltage threshold, defined in Table 145–25.

145.3.3.6 Single-signature PD functions

Update the descriptions of the variables in 145.3.3.6 per the format in the information box as follows:

Function	Variable	Type	Additional instructions
do_class_timing	long_class_event	F-type	
do_update_pse_assigned_class	pse_assigned_class	F/S-type	

145.3.3.9 Dual-signature PD variables

Update the descriptions of the variables in 145.3.3.9 in the same way as 145.3.3.4.

145.3.3.11 Dual-signature PD functions

Update the descriptions of the variables in 145.3.3.11 in the same way as 145.3.3.6.

145.5.3.3.1 Variables

Update the descriptions of the variables in 145.5.3.3.1 per the format in the information box as follows:

Variable	Type	Additional instructions
MirroredPDAutoclassRequest	D-type	Table 145-40
MirroredPDRequestedPowerValue	D-type	Table 145-40
MirroredPSEAllocatedPowerValueEcho	D-type	Table 145-40
PDRequestedPowerValueEcho	S-type	
PSEAllocatedPowerValue	S-type	
PSEAutoclassCompleted	S-type	
PSEAutoclassSupport	I-type	Figure 145-40 in IDLE
pse_initial_value	R-type	
local_system_change	A-type	
pse_alternative	I-type	Figure 145-13 in IDLE
pse_dll_enable	S-type	
pse_dll_ready	A-type	
pse_power_update	S-type	
sig_type	F-type	

145.5.3.3.2 Functions

Update the descriptions of the variables in 145.5.3.3.2 per the format in the information box as follows:

Function	Variable	Type	Additional instructions
pse_power_review	pse_new_value	F-type	

145.5.3.4.1 Constants

Move `pd_dllmax_value` to 145.5.3.4.2.

145.5.3.4.2 Variables

Update the descriptions of the variables in 145.5.3.4.2 per the format in the information box as follows:

Variable	Type	Additional instructions
pd_dllmax_value	R-type	
MirroredPDRequestedPowerValueEcho	D-type	Table 145-40

Update the variables in 145.5.3.6 and 145.5.3.7 in the same manner as 145.5.3.3 and 145.5.3.4 respectively.