Application Report
SLUA723–July 2014

SIFOs 802.3at Conformance Report, v 4.0.77, TPS23861

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1 Sifos Technologies

Sifos Technologies provides a one-box solution to facilitate complete testing and analysis of Power Sourcing Equipment (PSE) behaviors and overall compliance to the IEEE 802.3at specification. The PSE Conformance Test Suite serves as a virtual industry standard for PSE specification compliance. SIFOS test coverage exceeds 95% of 802.3at PSE PICS

2 Enhanced Test Conditions

In additional to just running the basic conformance testing on an individual port and to better recreate the system-level environment, TI individually tests all ports of its PSE controller devices while having the background ports running at various PoE-application conditions. TI further, repeats testing conditions over extended periods of time to ensure performance is consistent after multiple hours, days and/or continued operation.

PSA TEST RESULTS

Port Count..... 10
Loop Count..... 1
PSE Tested: results Type-2

Sifos Technologies — 802.3at Conformance Report version 4.0.61
Test Mode: 30 Watt PHY — report version 4.0.10
Sifos Interop Index*: 100%
Error Log: None

Chassis ID: 192.168.221.105	PSA-3000 Ports																
TestLoop: 1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	UNITS	Min	Max	Average	Low Limit	P/F	High Limit	P/F
Test: det_v																		
Open_Circuit_Det_Voc=	19.9	19.93	19.9	19.93	19.9	19.93	19.93	19.9	19.93	19.9	volts	19.9	19.93	19.915	2.8	Pass	30	Pass
Peak_Det_Vvalid=	7.15	7.15	7.15	7.16	7.16	7.15	7.16	7.16	7.16	7.15	volts	7.15	7.16	7.155	3.8	Pass	10	Pass
Min_Det_Vvalid=	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59	4.59	volts	4.59	4.59	4.59	2.8	Pass	9	Pass
Det_Volt_Step_dVtest=	2.56	2.56	2.55	2.57	2.57	2.56	2.56	2.56	2.57	2.55	volts	2.55	2.57	2.561	1	Pass	7.2	Pass
Detection_Slew=	0	0	0	0	0	0	0	0	0	0	V/usec	0	0	0	0	Pass	0.1	Pass
Good_Sig_Det_Pulse=	3	3	3	3	3	3	3	3	3	3	edges	3	3	3	1	Pass	9	Pass
Backoff_Voltage=	1	1	1	1	1	1	1	1	1	1	volts	1	1	1	0	Pass	2.8	Pass
Non_802_Step_V=	0	0	0	0	0	0	0	0	0	0	volts	0	0	0	0	Pass	0.1	Pass
High_Sig_MaxV=	11.04	11.04	11.04	11.03	11.04	11.04	11.04	11.04	11.04	11.04	volts	11.03	11.04	11.039	3.8	Pass	11	Info
Non_802_Discr_?=	0	0	0	0	0	0	0	0	0	0	****	0	0	0	0	Pass	0	Pass
Detect_Strategy=	0	0	0	0	0	0	0	0	0	0	****	0	0	0	0	Pass	2	Pass
Test: det_i																		
Init_Current_Isc=	0.17	0.17	0.16	0.14	0.16	0.17	0.17	0.17	0.16	0.16	mA	0.14	0.17	0.163	0	Pass	5	Pass
Det_Current_Isc=	0.21	0.21	0.21	0.19	0.21	0.2	0.21	0.21	0.21	0.21	mA	0.19	0.21	0.207	0	Pass	5	Pass
Test: det_range																		
Rgood_Max=	28	28	28	28	28	28	28	28	28	28	Kohm	28	28	28	26	Pass	32	Pass
Rgood_Min=	17	17	17	17	17	17	17	17	17	17	Kohm	17	17	17	16	Pass	19	Pass
Rmid_det=	28	28	28	28	28	28	28	28	28	28	Kohm	28	28	28	26	Pass	33	Pass
Cgood_Max=	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	uF	0.1	0.1	0.1	0	Pass	10	Pass
Rbad_Cbad_Stat=	0	0	0	0	0	0	0	0	0	0	****	0	0	0	0	Pass	0	Pass
Test: det_time																		
Backoff_Time_Tdbo=	94	94	94	94	94	94	94	94	94	94	msec	94	94	94	-1	Pass	1500	Pass
Eff_Backoff_Tdbo_eff=	94	94	94	94	94	94	94	94	94	94	msec	94	94	94	-1	Pass	1500	Pass
Backoff_Type=	0	0	0	0	0	0	0	0	0	0	****	0	0	0	0	Pass	1	Pass
Detection_Time_Tdet=	332	313	320	316	320	320	316	316	316	316	msec	313	332	318.5	5	Pass	500	Pass
Total_Det_Time=	344	344	344	344	344	344	344	344	344	344	msec	344	344	344	5	Pass	1000	Pass
Test: det_rsource																		
Output_Impedance_Zout=	248.9	271	287.8	255.3	270.7	271	297.1	241.7	287.8	279.2	KOhm	241.7	297.1	271.05	45	Pass	2000	Pass
Test: class_v																		
Class_Voltage_Vclass=	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	volts	18.8	18.8	18.8	15.5	Pass	20.5	Pass
Vclass_Min=	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	volts	18.8	18.8	18.8	15.5	Pass	20.5	Pass
Mark_Voltage_Vmark=	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	volts	8.5	8.5	8.5	7	Pass	10	Pass
Mark_Voltage_Min=	8.4	8.4	8.4	8.4	8.4	8.4	8.1	8.4	8.4	8.4	volts	8.1	8.4	8.37	7	Pass	10	Pass
Test: class_time																		
Event_Count=	2	2	2	2	2	2	2	2	2	2	****	2	2	2	2	Pass	3	Pass
Event1_Tcle1=	12.5	11.3	11.7	11.7	12.1	12.1	11.7	12.5	11.7	11.7	msec	11.3	12.5	11.9	6	Pass	30	Pass
Event2_Tcle2=	12.1	11.7	11.7	11.7	11.3	11.3	11.3	11.7	11.3	11.3	msec	11.3	12.1	11.54	6	Pass	30	Pass
Mark_Tme1=	8.6	8.2	7.8	8.6	7.8	7.8	8.2	7.8	8.2	8.2	msec	7.8	8.6	8.12	6	Pass	12	Pass
Mark_Tme2=	10.5	9	9.4	9.8	10.2	9.4	9	9.8	8.6	10.2	msec	8.6	10.5	9.59	6	Pass	376	Pass
Test: class_err																		
Class_lim=	75	75	75	75	75	75	75	75	75	75	mA	75	75	75	51	Pass	100	Pass
Vport_CL_lim=	14.6	14.5	14.5	14.6	14.6	14.5	14.6	14.5	14.6	14.4	V	14.4	14.6	14.54	0	Pass	20.5	Pass
Vport_CL_err_1=	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	V	18.7	18.7	18.7	0	Pass	20.5	Pass
Mark_lim=	6	6	6	6	8	6	6	6	6	mA 6		6	8	6.2	5	Pass	100	Pass
Vport_CL_err_2=	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.7	V	18.7	18.7	18.7	0	Pass	20.5	Pass
Treset=	92	92	92	111	94	92	92	92	92	92	msec	92	111	94.1	15	Pass	10000	Pass
Test: pwrup_time																		
Pwr-On_Rise_Time_Trise=	153	153	153	153	153	153	151	153	153	153	usec	151	153	152.8	15	Pass	50000	Pass
Power-On_Time_Tpon=	43	39.1	43	43	43	39.1	43	43	39.1	43	msec	39.1	43	41.83	0	Pass	400	Pass
Test: pwrup_inrush																		
Init_Iinrush=	425	425.25	425.38	425.25	425	425.13	425.38	425.13	425.25	425	mA	425	425.38	425.177	400	Pass	450	Pass
Max_Iinrush_c4=	425.38	425.25	425.5	425.25	425.5	425.5	425.25	425.25	425.25	425.38	mA	425.25	425.5	425.351	400	Pass	450	Pass
Min_Iinrush=	424.25	424.13	424.25	424.25	424.25	424.25	424.25	424.25	424.25	424.25	mA	424.13	424.25	424.238	400	Pass	450	Pass
Tinrush=	61.1	60.7	60	60.7	60.7	60	60.4	60	60.7	60.7	msec	60	61.1	60.5	50	Pass	75	Pass
Inrush_45m=	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	Volts	51.7	51.7	51.7	50	Pass	57	Pass
Inrush_Voltage=	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	Volts	30.7	30.7	30.7	30	Pass	57	Pass
Max_Init_Inrush=	425	425.3	425.3	425.3	425	425.3	425.3	425.5	425.3	425.5	mA	425	425.5	425.28	0	Pass	2000	Pass
Inrush_Strategy=	0	0	0	0	0	0	0	0	0	0	****	0	0	0	0	Pass	0	Pass
Test: pwron_v																		
Vport_min_2=	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	V	50.7	50.7	50.7	50	Pass	57	Pass
Vport_max_2=	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	V	51.8	51.8	51.8	50	Pass	57	Pass
Vport_ripple_2=	6	6	6	6	6	6	6	6	6	6	mVpp	6	6	6	0	Pass	500	Pass
Vport_noise_2=	45	40	44	44	48	53	45	49	46	45	mVpp	40	53	45.9	0	Pass	200	Pass
Vtrans_min_2=	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	50.7	V	50.7	50.7	50.7	50	Pass	57	Pass
Vtrans_max_2=	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	V	51.8	51.8	51.8	50	Pass	57	Pass
Test: pwron_pwrcap																		
Pcon_c4=	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	watts	32.4	32.4	32.4	30	Pass	38.9	Pass
Icon_c4=	637	637	637	637	637	637	637	637	637	637	mA	637	637	637	526.3	Pass	683	Pass
Type-2_Enable=	1	1	1	1	1	1	1	1	1	1	****	1	1	1	1	Pass	1	Pass
Test: pwron_maxi																		
Ilim_Peak=	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	mA	99.8	99.8	99.8	0	Pass	1750	Pass
Ilim_Min_2=	684.8	684.8	685.3	684.8	685.3	685.3	684.8	685.3	685.3	685.3	mA	684.8	685.3	685.1	683	Pass	1750	Pass
Tlim_2=	61.3	62.5	61.7	62.1	61.3	62.1	62.1	62.1	61.7	62.1	msec	61.3	62.5	61.9	10	Pass	75	Pass
Vlim_2=	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	V	50.5	50.5	50.5	50	Pass	57	Pass
Ilim_Max_2=	859.5	859.5	859.5	859.5	859.5	859.5	859	859.5	859.5	859.5	mA	859	859.5	859.45	0	Pass	1750	Pass
Ilim_Low_V_Tol_2=	61.7	62.9	60.9	61.3	61.7	62.1	60.2	60.9	61.7	60.2	msec	60.2	62.9	61.36	10	Pass	9999	Pass
Ktran_lo_2=	101.1	101.1	101	101.1	101.1	101.1	101.1	101	101	101	%	101	101.1	101.06	92.4	Pass	115	Pass
Test: pwron_overld																		
%Ipeak_2=	125	125	125	125	125	125	125	125	125	125	%	125	125	125	0	Pass	125	Pass
Vport_Ipeak_2=	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.6	50.5	50.5	V	50.5	50.6	50.51	50	Pass	57	Pass
Vport_5%DC_2=	50.5	50.5	50.5	50.5	50.5	50.6	50.6	50.6	50.6	50.6	V	50.5	50.6	50.55	50	Pass	57	Pass
Test: mps_dc_valid																		
Min_Valid_Time_Tmps=	50	50	50	50	50	50	50	50	50	50	msec	50	50	50	1	Pass	60	Pass
Duty_Cycle_tol=	1	1	1	1	1	1	1	1	1	1	****	1	1	1	1	Pass	1	Pass
Test: mps_dc_pwrdn																		
Min_Valid_I_hold=	8	8	8	8	8	8	8	8	8	mA 8		8	8	8	5	Pass	10	Pass
Time-to-Shutdown_Tmpdo=	364	364	364	364	363	365	363	364	364	364	msec	363	365	363.9	300	Pass	400	Pass
Max_Voltage_Vopen_max=	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	volts	19.9	19.9	19.9	-1	Pass	30	Pass
Test: pwrdn_overld																		
Icut_2=	654.3	654.3	644	654.3	654.3	654.3	654.3	654.3	654.3	654.3	mA	644	654.3	653.27	-1	Pass	683	Pass
Tcut_2=	62.7	62.1	65.7	64.2	62.8	62.5	63.4	63.6	63.9	63.3	msec	62.1	65.7	63.42	10	Pass	9999	Pass
Isoft_2=	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	mA	-1	-1	-1	-1	Pass	683	Pass
Tsoft_2=	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	msec	-1	-1	-1	-1	Pass	2000	Pass
Test: pwrdn_time																		
Turn-Off_Time_Toff=	50.8	50.1	51.3	50.1	50.1	50.2	50.1	50.1	50.1	50.2	mSec	50.1	51.3	50.31	0	Pass	500	Pass
Output_Cap_Cout=	0.2138	0.2122	0.2115	0.2123	0.2114	0.2128	0.2122	0.2137	0.2138	0.2148	uF	0.2114	0.2148	0.21285	-1	Pass	0.52	Pass
Output_Load_Rp=	114.8	113.9	118.2	113.8	114.3	113.6	113.9	112.8	112.8	112.3	Kohm	112.3	118.2	114.04	45	Pass	50000	Pass
Test: pwrdn_v																		
Avg_Idle_Voff=	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	VDC	0.9	0.9	0.9	0	Pass	2.8	Pass
Error_Delay_Ted=	1390.6	1382.8	1382.8	1390.6	1375	1421.9	1375	1375	1421.9	1382.8	msec	1375	1421.9	1389.84	750	Pass	10000	Pass
Peak_Error_Delay_Ved=	0.9	0.9	0.9	1	0.9	1	0.9	0.9	1	0.9	VDC	0.9	1	0.93	0	Pass	20.5	Pass

Figure 1. Sifos Technologies 802.3at Conformance Report

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