Software Release Notes
USB Power Delivery Software Framework (PSF)

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REV	DATE	DESCRIPTION OF CHANGE
0.90	Oct 24, 2019	First Web release
0.91	Nov 11,2019	Bug fix release
0.92	Dec 12,2019	Documentation release
0.95	Jan 09, 2020	Release with complete documentation and Bug fix
1.00	Feb 25, 2020	Source only feature complete release
1.01	Mar 19,2020	Phase 2 Alpha release
1.02	Apr 8, 2020	Phase 3 Alpha release
1.03	Apr 21, 2020	Bug fix release
1.04	June 19,2020	Phase 2 Beta Release
1.05	July 24, 2020	Bug fix release
1.06	Aug 20, 2020	Phase 4 Alpha Release
1.07	Sep 11, 2020	Phase 5 Interim Release

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1 Introduction

USB Power Delivery Software Framework (PSF) – a software-based Power Delivery stack along with UPD350 Type-C Port Controller (Maverick) is a USB-PD solution. It is a generic user-friendly that can be ported across various hardware platform.

Component Type	USB Power Delivery Software Framework (PSF)
Target Silicon	SAMD20 + UPD350
Where can an end user see the version number	Version number appended with filename ../PSF/Source/include/ProjectVersion.h

2 Release notes

2.1 Version 1.07

Release date	11-Sep 2020
Release Type	Phase 5 interim release
Pre-requisites (if any)	**PSF EVB**
Source Tag	**Tag:** PSF_STACK_V1.07

2.1.1 Not implemented / Limited functionality requirements

1. PSF-184: UART trace using onboard debugger not working
2. PSF-188: PSF should not go into Type C Error Recovery without Client intervention
3. PSF-183: Hard Reset occurs when renegotiation is triggered via client request
4. PSF-170: VCONN Source to reset the Cable Plug's Protocol Layer in order to ensure MessageID synchronization
5. PSF-85: [MPQ]Ellisys Compliance fails when INCLUDE_POWER_MANAGEMENT_CTRL = 1
6. PSF-153: VBUS Discharge handling inside Type C ISR
7. PSF-18: CLONE - Absence of power negotiation on ports of the DUT when VDD33 is set to 2.80V
8. PSF-21: VBUS OCS Power fault handling not working
9. PSF-187: SenderResponseTimer Timeout Request Compliance test Failed
10. PSF-186: [Sink] Hard Reset is sent after negotiation

11. PSF-182: tVCONNON should be 2ms as per Type- C specification but it is 10ms as inherited from Amazon

12. PSF-179: Require modifications in PSF IDLE Status reporting

13. PSF-180: Updating PSF documentation to add more inclusive terminology as per new guidelines

14. PSF-177: [VCONN_Swap and DR_Swap] Continous Role Swap did not occur even when both Auto Request policies are enabled

15. PSF-168: [Swap Notification] Swap completion notification to be posted after sending Reject to swap request

16. PSF-157: Implement the FW changes needed to address PSF-148

17. PSF-86: [Field] VBUS drop observed during Voltage transitions when the sink load is higher

18. PSF-154: CLONE - Workaround for OLYMPUS_DEV-3217

19. PSF-173: Port0 when acts as DRP as Source or fixed source, runs into error recovery after turning on VBUS

20. PSF-98: [Field]Implement the requested software hooks

21. PSF-160: Trace support at lower UART frequencies

22. PSF-78: Clarification On MCU Idle Timeout Configuration

23. PSF-150: [Ellisys] [Sink] Ellisys compliance tests failed with sink demo firmware

24. PSF-132: [SNK][Phase3] List of features not tested for PSF phase 3 alpha release

25. PSF-94: [MPQ] Handle I2C read/write failures

26. PSF-51: [Sink][LeCroy] TD.4.10.2 Sink Power Precedence Test Fails When PUT configured as Sink

27. PSF-50: [Sink][LeCroy] TDA 2.3.3.1 PDO Transition, Current Draw and Suspend Test - Sink, Consumer or Consumer/Provider Test Fails when PUT acts as Sink Partner

28. PSF-49: [Sink][LeCroy] TDA 2.1.3.2 BMC PHY Level Message Test Fails when PUT is Configured as sink

29. PSF-44: [Lecroy] TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails When PUT is configured as Source

30. PSF-161: [Cfg&Sts] Power fault counter status parameter needs to be implemented.

31. PSF-53: [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink

32. PSF-155: PSF does not respond to VDM:Disc Identity command from port partner

33. PSF-141: [Document] Source Pro Demo Read Me Limitations

34. PSF-101: [PSF User Guide] Capture the 8-bit memory requirement details under section "Software Requirements"

2.1.2 Bug Fixes

1. PSF-176: Any AMS followed by VCONN_Swap leads to Soft Reset when Negotiated PD Spec Rev is 2.0

2. PSF-178: PSF Sends Reject for a valid Request

3. PSF-185: [DR_Swap] Port fails to negotiate after first detach

4. PSF-175: CONFIG_PORT_UPD_IDLE_TIMEOUT_MS should be moved inside the stack since it is determined by the stack

5. PSF-189: 'Not Supported' response is not handled in PE Receive msg handler

6. PSF-190: DR and PR Swap should be treated as Unsupported when DRD/DRP bits are 0

7. PSF-191: [Sink] When port partner(src) gets disabled, sink detects UV fault and becomes inactive for further PD transaction

8. PSF-192: When PSF Sink acts as VCONN source, VCONN discharge is not complete when the port gets disabled

9. PSF-193: [Sink] When source partner is disabled and enabled again, PSF sink does not re-negotiate

10. PSF-194: Port2 configurations and application code may be restricted under a macro to enable a demo to be configured for single port

2.1.3 Features Added

1. PSF-136: Dynamic Port Control (Port Enable/Disable) Client request

2. PSF-137: Power Delivery Disabled notification

3. PSF-147: Discover identity support for Teton PSF

2.1.4 Notes

- Only 2 Port solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested.
- For Source Pro application,
    - Ellisys compliance has been tested with INCLUDE_POWER_MANAGEMENT_CTRL = 0
- For DRP application, Ellisys compliance testing is not done.

2.2 Version 1.06

Release date	20-Aug 2020
Release Type	Phase 4 alpha release
Pre-requisites (if any)	**PSF EVB**
Source Tag	**Tag:** PSF_STACK_V1.06

2.2.1 Not implemented / Limited functionality requirements

1. PSF-136: Dynamic Port Control(Port Enable/Disable) Client request
2. PSF-153: VBUS Discharge handling inside Type C ISR
3. PSF-18: CLONE - Absence of power negotiation on ports of the DUT when VDD33 is set to 2.80V
4. PSF-147: Discover identity support for Teton PSF
5. PSF-21: VBUS OCS Power fault handling not working
6. PSF-98: [Field]Implement the requested software hooks
7. PSF-137: Power Delivery Disabled notification
8. PSF-160: Trace support at lower UART frequencies
9. PSF-78: Clarification On MCU Idle Timeout Configuration
10. PSF-150: [Ellisys] [Sink] Ellisys compliance tests failed with sink demo firmware
11. PSF-132: [SNK][Phase3] List of features not tested for PSF phase 3 alpha release
12. PSF-85: [MPQ]Ellisys Compliance fails when INCLUDE_POWER_MANAGEMENT_CTRL = 1
13. PSF-86: [Field] VBUS drop observed during Voltage transitions when the sink load is higher
14. PSF-170: VCONN Source to reset the Cable Plug's Protocol Layer to ensure MessageID synchronization

15. PSF-168: [Swap Notification] Swap completion notification to be posted after sending Reject to swap request
16. PSF-157: Implement the FW changes needed to address PSF-148
17. PSF-94: [MPQ] Handle I2C read/write failures
18. PSF-51: [Sink][LeCroy] TD.4.10.2 Sink Power Precedence Test Fails When PUT configured as Sink
19. PSF-50: [Sink][LeCroy] TDA 2.3.3.1 PDO Transition, Current Draw and Suspend Test - Sink, Consumer or Consumer/Provider Test Fails when PUT acts as Sink Partner
20. PSF-49: [Sink][LeCroy] TDA 2.1.3.2 BMC PHY Level Message Test Fails when PUT is Configured as sink
21. PSF-44: [Lecroy] TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails When PUT is configured as Source
22. PSF-161: [Cfg&Sts] Power fault counter status parameter needs to be implemented.
23. PSF-53: [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink
24. PSF-155: PSF does not respond to VDM:Disc Identity command from port partner
25. PSF-141: [Document] Source Pro Demo Read Me Limitations
26. PSF-101: [PSF User Guide] Capture the 8-bit memory requirement details under section "Software Requirements"
27. PSF-173: Port0 when acts as DRP as Source or fixed source, runs into error recovery after turning on VBUS
28. PSF-54: [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink

2.2.2 Bug Fixes

1. PSF-172: When VCONN swap is not supported, respond with "reject" and not with "not supported" for the VCONN swap message
2. PSF-145: [Sink] Power fault occurs when source partner is detached
3. PSF-167: [Snk] UV Fault is triggered during detach when the port is Sourcing VCONN
4. PSF-134: [Field] VCONN Swap not working with HP laptop
5. PSF-156 - Client notification to be added to indicate port powered off due to power fault

6. PSF-162 - [Cfg&Stst] In port identity, manufacturer string and its length needs to be implemented and product ID should be set with proper default value
7. PSF-164 -[Src] New PDOs to be cleared only when renegotiation is triggered by DPM
8. PSF-55: [Sink][Ellisys] Errors Encountered while Executing TD.4.3.1 Sink Connect Source Test Case
9. PSF-109: [SINK] When Gotomin was issued from source, sinkoperatingcurrent does not retain minimum operating current.
10. PSF-163: Organise defines in bootcfg.h file in all demos, so that, it is easy for user to configure.

2.2.3 Features Added

- Dual Role Power
- Data Role Swap
- Power Role Swap

New application for DRP configuration is added with this release.

First port of DRP application is configured as Notebook port with Role Swap Policy set to accept and request DR_Swap when acting as UFP, accept and request PR_Swap when acting as Source, request VCONN_Swap when not acting as VCONN source and accept VCONN_Swap when acting as both VCONN Source and Not as VCONN Source.

Second port of DRP application is configured as Dock type port with Role Swap Policy set to accept and request DR_Swap when acting as DFP, accept and request PR_Swap when acting as Sink and accept VCONN_Swap when acting as both VCONN Source and Not as VCONN Source.

2.2.4 Notes

- Only 2 Port solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested.
- For Source Pro application,
    - Ellisys compliance has been tested with INCLUDE_POWER_MANAGEMENT_CTRL = 0
- For DRP application, Ellisys compliance testing is not done.

2.3 Version 1.05

Release date	24-July 2020
Release Type	Bug fix release
Pre-requisites (if any)	**PSF EVB**
Source Tag	**Tag:** PSF_STACK_V1.05

2.3.1 Not implemented / Limited functionality requirements

Source existing issues:

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source.
2. PSF-86: [Field] VBUS drop observed during Voltage transitions when the sink load is higher
3. PSF-79: Clarification on VSEL Configuration
4. PSF-90: Continuous PD re-negotiation when number of source PDOs is 7
5. PSF-134: [Field] VCONN Swap not working with HP laptop
6. PSF-21: VBUS OCS Power fault handling not working
7. PSF-85: [MPQ]Ellisys Compliance fails when INCLUDE_POWER_MANAGEMENT_CTRL = 1
8. PSF-135: PSF Control/Status Data Memory Management
9. PSF-136: Dynamic Port Control(Port Enable/Disable) Client request
10. PSF-137: Power Delivery Disabled notification
11. PSF-94: [MPQ] Handle I2C read/write failures
12. PSF-78: Clarification On MCU Idle Timeout Configuration
13. PSF-95: PSF 8-bit MCU porting Feedback
14. PSF-118: Phase 2 FW does not support PB and PT on PPS Ports
15. PSF-98: [Field]Implement the requested software hooks
16. PSF-64: [Field] Un explained 20V toggling plus 5V,14V steps on the way to reaching 20V
17. PSF-153: VBUS Discharge handling inside Type C ISR
18. PSF-147: Discover identity support for Teton PSF

19. PSF-18: CLONE - Absence of power negotiation on ports of the DUT when VDD33 is set to 2.80V

20. PSF-156: Client notification to be added to indicate port powered off due to power fault

21. PSF-154: CLONE - Workaround for OLYMPUS_DEV-3217

22. PSF-155: PSF does not respond to VDM:Disc Identity command from port partner

Sink existing issues:

1. PSF-55: [Sink][Ellisys] Errors Encountered while Executing TD.4.3.1 Sink Connect Source Test Case

2. PSF-54: [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink

3. PSF-51: [Sink][LeCroy] TD.4.10.2 Sink Power Precedence Test Fails When PUT configured as Sink

4. PSF-50: [Sink][LeCroy] TDA 2.3.3.1 PDO Transition, Current Draw and Suspend Test - Sink, Consumer or Consumer/Provider Test Fails when PUT acts as Sink Partner

5. PSF-49: [Sink][LeCroy] TDA 2.1.3.2 BMC PHY Level Message Test Fails when PUT is Configured as sink

6. PSF-132: [SNK][Phase3] List of features not tested for PSF phase 3 alpha release

7. PSF-109: [SINK] When Gotomin was issued from source, sinkoperatingcurrent does not retain minimum operating current.

8. PSF-150: [Ellisys] [Sink] Ellisys compliance tests failed with sink demo firmware

2.3.2 Bug Fixes

1. PSF-140: [PPS] TD.PD.SRC.E16 PDO Transition Failure

2. PSF-144: [PPS] More than one alert sent for cable limitation

3. PSF-142: [CSR] Advertised PDOs to be cleared after detach

4. PSF-151: Hooks to notify PSF stack Idle waiting for an event

5. PSF-149: [Sink] Evaluating source capabilities needs to be done based on adverised PDOs, not sink PDOs

6. PSF-139: [Sink] After a board reset, PD negotiation fails

7. PSF-146: [Src] Code Review comments
8. PSF-152: Orientation pin is not initialised in V1.04 Release
9. PSF-121: CONFIG_DCDC_CTRL in Sink Mode

2.3.3 Features Added

- None.

2.3.4 Notes

- Only 2 Port Source and Sink solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested.
- For Source Pro application,
    - Ellisys compliance has been tested with INCLUDE_POWER_MANAGEMENT_CTRL = 0
    - Power Balancing and Power Throttling are supported only on non-PPS ports.

2.4 Version 1.04

Release date	19-June-2020
Release Type	Phase 2 Beta release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V1.04

2.4.1 Not implemented / Limited functionality requirements

Source existing issues:

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source.
2. PSF-86: [Field] VBUS drop observed during Voltage transitions when the sink load is higher
3. PSF-79: Clarification on VEL Configuration
4. PSF-90: Continuous PD re-negotiation when number of source PDOs is 7
5. PSF-134: [Field] VCONN Swap not working with HP laptop
6. PSF-21: VBUS OCS Power fault handling not working

7. PSF-85: [MPQ]Ellisys Compliance fails when INCLUDE_POWER_MANAGEMENT_CTRL = 1
8. PSF-135: PSF Control/Status Data Memory Management
9. PSF-136: Dynamic Port Control(Port Enable/Disable) Client request
10. PSF-137: Power Delivery Disabled notification
11. PSF-121: CONFIG_DCDC_CTRL in Sink Mode
12. PSF-94: [MPQ] Handle I2C read/write failures
13. PSF-78: Clarification On MCU Idle Timeout Configuration
14. PSF-95: PSF 8-bit MCU porting Feedback
15. PSF-118: Phase 2 FW does not support PB and PT on PPS Ports
16. PSF-98: [Field]Implement the requested software hooks
17. PSF-64: [Field] Un explained 20V toggling plus 5V,14V steps on the way to reaching 20V
18. PSF-140: [PPS] TD.PD.SRC.E16 PDO Transition Failure
19. PSF-141: [Document] Source Pro Demo Read Me Limitations

Sink existing issues:

1. [Sink][Ellisys] Errors Encountered while Executing TD.4.3.1 Sink Connect Source Test Case
2. [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink
3. [Sink][LeCroy] TD.4.10.2 Sink Power Precedence Test Fails When PUT configured as Sink
4. [Sink][LeCroy] TDA 2.3.3.1 PDO Transition, Current Draw and Suspend Test - Sink, Consumer or Consumer/Provider Test Fails when PUT acts as Sink Partner
5. [Sink][LeCroy] TDA 2.1.3.2 BMC PHY Level Message Test Fails when PUT is Configured as sink
6. [SNK][Phase3] List of features not tested for PSF phase 3 alpha release
7. [SINK] When Gotomin was issued from source, sinkoperatingcurrent does not retain minimum operating current.

2.4.2 Bug Fixes

1. PSF-83: Complete the listed tasks in CSR, I2C DC/DC, PPM and PB modules

2. PSF-88: Complete the listed tasks in Control and Status registers implementation
3. PSF-30: [Sink]PD Sink Negotiation was not Proper for Certain PDO
4. PSF-120: Negotiation is inconsistent when INCLUDE_POWER_FAULT_HANDLING = 1
5. PSF-119: 20V Negotiation fails with I2C DC/DC
6. PSF-114: Negotiation fails with I2C DC/DC from FW commit #1a020c212d5
7. PSF-138: Source Lite and Pro - Inconsistent behaviour observed
8. PSF-110: [MPQ] Port Power is not driven when PDO Count > 4
9. PSF-96: PC Lint for Alpha FW v1.01
10. PSF-97: [CSR] Struct and Stack versions should be updated by the stack, not by user application
11. PSF-112: [CSR]gasCfgStatusData to be passed as an argument in Configuration APIs of all the sample applications
12. PSF-117: Source Pro FW with Debug messages is non functional
13. PSF-116: [CSR] Following parameters are not getting updated during a valid PD contract
14. PSF-105: [CSR] New PDO registers should be cleared after a successful explicit contract is established
15. PSF-103: [CSR] EN_VBUS status bit should be updated for I2C based DC/DC controllers also
16. PSF-91: Build failure when INCLUDE_UPD_PIO_OVERRIDE_SUPPORT is set to 0
17. PSF-71: PSF feedback for porting to 16-bit MCUs
18. PSF-87: Handle Unexpected message when Sink capabilities message is received in wrong PE State
19. PSF-115: Implement DPM Client Request Handler based on Configuration Register settings

2.4.3 Features Added

- Power Throttling
- Source only Programmable Power Supply

2.4.4 Notes

- Only 2 Port Source and Sink solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested.
- For Source Pro application,
    - Ellisys compliance has been tested with INCLUDE_POWER_MANAGEMENT_CTRL = 0
    - Power Balancing and Power Throttling are supported only on non-PPS ports.

2.5 Version 1.03

Release date	21-April-2020
Release Type	Bug fix release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V1.03

2.5.1 Not implemented / Limited functionality requirements

Source existing Issues:

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source.
2. PSF-85: Ellisys Compliance fails with MPQ4230 I2C DC/DC Converter when INCLUDE_POWER_MANAGEMENT_CTRL = 1
3. PSF-86: VBUS drop observed during Voltage transitions when the sink load is higher
4. PSF-89: No activity seen on Port 2 when MPQ I2C DC/DC controller is used with PSF
5. PSF-90: Continuous PD re-negotiation when number of source PDOs is 7
6. PSF-88: u16PortIntMask and u16PortStatusChange of Status registers need to be implemented.
7. PSF-110 [MPQ DC/DC] Port Power is not driven when PDO Count > 4
8. PSF-112 gasCfgStatusData to be passed as an argument in Configuration APIs of all the sample applications
9. PSF-97 Struct and Stack versions should be updated by the stack, not by user application
10. PSF-114 Negotiation fails with I2C DC/DC from FW commit #1a020c212d5
11. PSF-115 Implement DPM Client Request Handler based on Configuration Register settings

Sink Issues:

Due to lack of Lecroy and Ellisys availability following JIRAs could not be tested

1. PSF-49 [Sink][LeCroy] TDA 2.1.3.2 BMC PHY Level Message Test Fails when PUT is Configured as sink
2. PSF-50 [Sink][LeCroy] TDA 2.3.3.1 PDO Transition, Current Draw and Suspend Test - Sink, Consumer or Consumer/Provider Test Fails when PUT acts as Sink Partner
3. PSF-51[Sink][LeCroy] TD.4.10.2 Sink Power Precedence Test Fails When PUT configured as Sink
4. PSF -53 [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink
5. PSF-55 [Sink][Ellisys] Errors Encountered while Executing TD.4.3.1 Sink Connect Source Test Case
6. PSF-109 [SINK] When Gotomin was issued from source, sinkoperatingcurrent does not retain minimum operating current.

Sink Board issue:

1. PSF – 99 [SNK] [Hades] SAMD20 code does not boot when board is configured for bus-power

2.5.2 Bug Fixes

1. PSF-111 - [SYS_DOS] [SINK] EN_SNK, DC_DC_EN and VBUS_EN functionality clarification

2.5.3 Features added

1. Functional implementation for EN_SINK pin.

Sink demo project can be found under Demo folder in the name PSF_EVB_Sink.

2.5.4 Notes

The release is only for Sink application. For Source and Source Pro application use the V1.01 version of PSF.

2.6 Version 1.02

Release date	8-April-2020
Release Type	PSF Phase 3 Alpha release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V1.02

2.6.1 Not implemented / Limited functionality requirements

Source existing Issues:

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source.
2. PSF-85: Ellisys Compliance fails with MPQ4230 I2C DC/DC Converter when INCLUDE_POWER_MANAGEMENT_CTRL = 1
3. PSF-86: VBUS drop observed during Voltage transitions when the sink load is higher
4. PSF-89: No activity seen on Port 2 when MPQ I2C DC/DC controller is used with PSF
5. PSF-90: Continuous PD re-negotiation when number of source PDOs is 7
6. PSF-88: u16PortIntMask and u16PortStatusChange of Status registers need to be implemented.
7. PSF-110 [MPQ DC/DC] Port Power is not driven when PDO Count > 4
8. PSF-112 gasCfgStatusData to be passed as an argument in Configuration APIs of all the sample applications
9. PSF-97 Struct and Stack versions should be updated by the stack, not by user application

Sink Issues:

Due to lack of Lecroy and Ellisys availability following JIRAs could not be tested

1. PSF-49 [Sink][LeCroy] TDA 2.1.3.2 BMC PHY Level Message Test Fails when PUT is Configured as sink
2. PSF-50 [Sink][LeCroy] TDA 2.3.3.1 PDO Transition, Current Draw and Suspend Test - Sink, Consumer or Consumer/Provider Test Fails when PUT acts as Sink Partner
3. PSF-51[Sink][LeCroy] TD.4.10.2 Sink Power Precedence Test Fails When PUT configured as Sink
4. PSF -53 [Sink][Ellisys] TD.4.1.2 Unpowered CC Voltage Test fails when PUT Configured as Sink

5. PSF-55 [Sink][Ellisys] Errors Encountered while Executing TD.4.3.1 Sink Connect Source Test Case

6. PSF-109 [SINK] When Gotomin was issued from source, sinkoperatingcurrent does not retain minimum operating current.

7. PSF-111 - [SYS_DOS] [SINK] EN_SNK, DC_DC_EN and VBUS_EN functionality clarification

Sink Board issue:

1. PSF – 99 [SNK] [Hades] SAMD20 code does not boot when board is configured for bus-power

2.6.2 Bug Fixes

Sink Bug fixes:

1. PSF-36: CONFIG_PORT_n_SINK_USB_SUSPEND Field is not there in Fixed PDO fields of Sink Port – Removed CONFIG_PORT_n_SINK_USB_SUSPEND configuration which is not required and added NO_USB_SUSPEND flag implementation in u8SinkConfigSel.

2. PSF-30: PD Sink Negotiation was not proper for certain PDO – There was logical comparison error while comparing source an sink PDO list.

3. PSF-46 - [Sink][Ellisys] TD.PD.PHY.E16 Valid Hard Reset Framing Test Fails When PUT is Configured as sink - Hardreset handling in sink state machine had issue.

4. PSF-47 -[Sink][Ellisys] TD.PD.SNK.E1 SinkWaitCapTimer Deadline Test Fails When PUT Configured as Sink – Due to timer precision issue

5. PSF-54 [Sink][Ellisys] Errors Encountered while Executing TD.PD.LL.E4 Hard Reset Usage Test Case – Failure due to hard reset handling

Source Bug fixes:

1. PSF-91: Build failure when INCLUDE_UPD_PIO_OVERRIDE_SUPPORT is set to 0

2. PSF-108: UART needs to be added in SAMD20_PSFHarmonyConfiguration.xml in sink, source lite and source pro projects

Common to Source and Sink:

1. PSF-93 - Precision of software timers(PDTIMER) is erroneous to a max of 0.5ms time difference – Precision is fixed by timer providing value of Time value or +0.5ms.

2.6.3 Features added

New Demo USB PD Sink functionality is added with following supports

- Mode A (High Wattage with high voltage)
- Mode B (High wattage with low voltage)
- Goto_Min support
- VCONN swap support
- DAC and GPIO current indicators.

Sink demo project can be found under Demo folder in the name PSF_EVB_Sink.

2.6.4 Notes

The release is only for Sink application. For Source and Source Pro application use the V1.01 version of PSF.

2.7 Version 1.01

Release date	19-Mar-2020
Release Type	PSF Phase 2 Alpha release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V1.01

2.7.1 Not implemented / Limited functionality requirements

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source.

2. PSF-85: Ellisys Compliance fails with MPQ4230 I2C DC/DC Converter when INCLUDE_POWER_MANAGEMENT_CTRL = 1

3. PSF-86: VBUS drop observed during Voltage transitions when the sink load is higher

4. PSF-89: No activity seen on Port 2 when MPQ I2C DC/DC controller is used with PSF

5. PSF-90: Continuous PD re-negotiation when number of source PDOs is 7

6. PSF-91: Build failure when INCLUDE_UPD_PIO_OVERRIDE_SUPPORT is set to 0

7. PSF-88: u16PortIntMask and u16PortStatusChange of Status registers need to be implemented.

2.7.2 Bug Fixes

1. PSF-70: "Data" Configurable Parameter cannot be Configured to Other Options mentioned in the System DOS – Bits 8:6 of u32CfgData in PORT_CFG_STATUS structure holds the option to configure USB Data parameters.

2. PSF-71: PSF feedback for porting to 16-bit MCU – Suggested type casts are taken care and a new Hook function is introduced for enable/disable of DC_DC_EN.

3. PSF-82: tVCONNSourceOn timer value exceeds the Max Limit given in USB PD Specification – VCONN On and Off timer values are updated as per the PD Specification.

4. PSF-87: Handle Unexpected message when Sink capabilities message is received in wrong PE State – Unexpected message handling is fixed by sending soft reset in case sink caps message is received in wrong PE state.

2.7.3 Features added

- Boot time Configuration parameters and Run time Status registers
- Support for MPQ4230 I2C DC/DC controller
- Power Balancing

2.7.4 Notes

- Only 2 Port Source and Sink solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested.
- For Source Pro application, Ellisys compliance has been tested only in Port 1 with INCLUDE_POWER_MANAGEMENT_CTRL = 0 and INCLUDE_POWER_BALANCING = 0 whereas for Source Lite application, 2 port Ellisys compliance has been tested.

2.8 Version 1.00

Release date	26-Feb-2020
Release Type	PD Source only feature complete release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V1.00

2.8.1 Not implemented / Limited functionality requirements

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source

2.8.2 Bug Fixes

1. PSF-21: VBUS OCS Power fault handling not working – Max Power Fault Count check is included for implicit contract also.
2. PSF-26: Build Fails When INCLUDE_POWER_FAULT_HANDLING Macro is set to 0 – Fixed the error thrown by the compiler.
3. PSF-43: TD.PD.SRC.E16 PDO Transition Test fails inconsistently in Port 1 Alone when Configured as Source – There was a difference in actual voltage threshold values and those calculated by FW due to the improper float to int conversions handled in FW. This is fixed.

4. PSF-45: TDA 2.3.2.1 PDO Transition Test - Source, Provider or Provider/Consumer Test Fails on both Ports – The fix is same as that of PSF-43

2.8.3 Features added

NA

2.8.4 Notes

- This is PD Source only feature complete release with bug fixes reported in v0.95
- Only 2 Port Source and Sink solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested, whereas basic I2C read/writes are tested.

2.9 Version 0.95

Release date	09-Jan-2020
Release Type	Beta Release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V0.95

2.9.1 Not implemented / Limited functionality requirements

1. PSF-44: TDA 2.3.1.1 Source Dynamic Load Test, Provider or Provider/Consumer Test Fails when PUT is configured as Source
2. PSf-41: SPT.5 Over Current QuadraMAX Test Fails on Both Ports

2.9.2 Bug Fixes

1. PSF-21: VBUS OCS Power fault handling not working – DC_DC_EN was toggled twice to reset the fault occurred. Since DC_DC was set and reset immediately, DC-DC controller did not have enough time to reset itself. PIO Override drive was not reset after a Fault. Both the issues are fixed.

2. PSF-7: HiByte has potential error – Fixed the warning generated by PC Lint

3. PSF-65: PD Source tests in Ellisys compliance fails when MchpPSF_Run() is called for every 3ms – This issue is fixed by setting PE_PDCONNECTED_STS_MASK in ePE_SRC_NEGOTIATE_CAPABILITY state.

4. PSF-61: Unable to charge HP-Laptop - Possible Bug with VCONN SWAP response (Reject/Not Supported) - For source only operation,INCLUDE_VCONN_SWAP_SUPPORT should be defined as '1'. Same is updated in the PSF_Config.h file description.

5. PSF-69: When INCLUDE_UPD_PIO_OVERRIDE_SUPPORT defined as 0, negotiation is not happening - Undervoltage was detected by FW without considering whether under voltage power fault detection was enabled; Which caused undervoltage detection and follow up power shutdown. It is fixed now.

2.9.3 Features added

NA

2.9.4 Notes

- Only 2 Port Source and Sink solution has been tested at 8MHz SPI clock speed.
- System level PD communication between PSF and UPD350 through I2C interface is untested, whereas basic I2C read/writes are tested.

2.10 Version 0.92

Release date	12-Dec-2019
Release Type	Documentation Release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V0.92

2.10.1 Not implemented / Limited functionality requirements

Firmware Bug fixes are not made for this release. All the bugs observed with V0.91 release is applicable for V0.92 release too.

2.10.2 Bug Fixes

No Bug fixes made

2.10.3 Features added

This release is made to mark the release of following documents

- PSF User Guide
- Getting Started with PSF
- Demo Read me

2.10.4 Notes

None.

2.11 Version 0.91

Release date	11-Nov-19
Release Type	Bug fix release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V0.91

2.11.1 Not implemented / Limited functionality requirements

1. PSF-7 - HiByte has potential error

2.11.2 Bug Fixes

1. PSF-19 -FW has build issue when CONFIG_PD_PORT_COUNT set to 1
2. PSF-21 - VBUS OCS Power fault handling not working

3. PSF-26 - Build Fails When INCLUDE_POWER_FAULT_HANDLING Macro is set to 0
4. PSF-31 - Build Fails When INCLUDE_PDFU Macro is set to 1
5. PSF-32 - Configuring CONFIG_PORT_n_SINK_USB_COM macro Field is not Effective
6. PSF-33 - Configuring CONFIG_PORT_n_SINK_UNCONSTRAINED_PWR macro Field is not Effective
7. PSF-34 - Build Fails When INCLUDE_PD_3_0 Macro is set to 0

2.11.3 Features added

NA

2.11.4 Notes

Following JIRA reported marked invalid after developing from developer's side:

1. PSF-22 -VCONN OCS handling not working
2. PSF 23 - PD Negotiation Fails when PDOs are Configured more than 5 with certain values
3. PSF-25 - The PUT is not Disabled Even After the Under Voltage Count Exceeds the Maximum Fault Count

2.12 Version 0.90

Release date	24-Oct-2019
Release Type	Initial Web release
Pre-requisites (if any)	**PSF EVB Rev A**
Source Tag	**Tag:** PSF_STACK_V0.91

2.12.1 Not implemented / Limited functionality requirements

1. PSF-7 - HiByte has potential error
2. PSF-21 - VBUS Power fault handling not working
3. PSF-22 - VCONN OCS handling not working
4. PSF-23 - PD Negotiation Fails when PDOs are Configured more than 5 with certain values
5. PSF-25 - The PUT is not Disabled Even After the Under Voltage Count Exceeds the Maximum Fault Count

2.12.2 Bug Fixes

Not Applicable

2.12.3 Features added

Initial revision of PSF for Source only operation.

2.12.4 Notes

Not Applicable