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| **Freescale Semiconductor** | Document |
| LDPAA AIOP SERVICE LAYER | Number: AIOPSLRN |
| Release Notes for LDPAA AIOP Service Layer Alpha v0.4.4 | Doc. Rev. 0.1 Oct. 7 2014 |

**LDPAA AIOP SERVICE LAYER ALPHA V0.4.4**

**Release Notes**

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1. Overview

This document describes the main updates included in the LDPAA AIOP Service Layer Alpha v0.4.4 as compared with v0.4.3.

Applications should use the APIs in: aiopsl/src/include/

All other APIs are internal to the Service Layer and should not be called by applications.

The API may be changed in future releases.

The API may be updated in future releases to align with the latest HW specs.

This release can be retrieved from GIT:

GIT repository: ssh://gerrit/ldpaa/aiopsl/

GIT branch: master

GIT tag: **ldpaa-aiop-sl-v0.4.4**

Please see the aiopsl/docs/AIOPCoreLib\_ChangeLog.txt and aiopsl/docs/AIOP\_ARENA\_ChangeLog.txt files for a detailed list of changes.

The API book documentation may be downloaded from Compass at:

<http://compass.freescale.net/livelink/livelink?func=ll&objId=232593254&objAction=browse&viewType=1>

Please subscribe to the AIOPSREL mailing list to receive future release notifications.

1. Compatibility List

This release is bit accurate with respect to the following docs/tools.

As such, it is suitable for running on RTL/Emulator/Simulator.

|  |  |
| --- | --- |
| **Tool/Doc** | **Version** |
| AIOP\_Archdef | 0.8.0 |
| FD\_section | 0.62.3 |
| CTLU\_AIOP\_bg | 0.7.4 |
| TMan | 0.7.81 |
| Parser\_Block\_Guide | 3.090 |
| AIOP\_Instruction\_Additions | 1.00 |
| Compiler | Build 281 |
| CW for DPAA | 10.0.11 |
| Simulator | LS\_SIM\_M0122 |
| MC Firmware | 0.5.0 |
| PowerISA | 2.06 |
| AIOP\_z490\_CPU\_Specification | Rev1.2 |
|  |  |

1. New Features

The following new features have been added since v0.4.3:

## General Features

* AIOP Boot
  + AIOP is booted with 16 cores enabled.
  + AIOP notifies MC if boot fails.
  + The AIOP Portal ID is configurable through the layout file.
  + The AIOP ICID is configurable through the layout file.
  + The AIOP UART port is determined by MC.
  + AIOP memory requirements are application-defined (see config.c).
  + Number of tasks per core is application-defined (see config.c).
  + TMAN frequency is application-defined (see config.c).
* Memory Management
  + DPBP object discovery is used to discover AIOP BMan pools.
  + Slab performance has been optimized.
* Command Interface
  + Full AIOP virtualization and isolation is now supported.
  + AIOP-GPP shared memory allocation and access API has been added (see fsl\_icontext.h).
* Network Interface
  + Unicast and multicast promiscuous modes can be controlled by applications.
  + Applications may query for the Storage Profile of a NI.
* Debug
  + The AIOP now halts upon a stack overflow error, allowing developers to examine the program stack.
* IPsec
  + IPsec functionality was added, supporting the following features:
    - Tunnel mode
    - Packets with L2 header, no short frames.
    - IPv4/IPv6 for both inner and outer headers, no fragmented frames.
    - Frame encryption and decryption
    - Null and AES-CBC encryption algorithms, HMAC\_MD5\_96 and HMAC\_SHA2\_256\_128 authentication algorithms.
    - Multiple IPsec instances and SAs
  + See build/aiop\_sim/apps/ipsec\_fm\_demo/src/ “README.txt” and “ipsec\_fm\_demo.c” for instructions and example.
* MFLU
  + The following functions are supported for MFLU:
    - table\_create()
    - table\_get\_params()
    - table\_rule\_create()
    - table\_rule\_create\_or\_replace()
    - table\_lookup\_by\_key()
    - table\_lookup\_by\_keyid\_default\_frame()

## Error Flows Support

#### Service Routines

* Fatal errors are not supported.
* Non-fatal errors are only supported in: CDMA, Parser and KeyGen.
* Partial non-fatal errors are supported in: CTLU and TMAN.
* No support for errors in: OSM, FDMA and STE.

#### Functional Modules

* There is no support for errors in functional modules.

1. Changes

The following are changes from version v0.4.3 (details in the ChangeLog file):

* Memory Management
  + - The Slab reference count decrement API has been updated. The Slab module no longer releases buffers automatically upon reaching a zero reference count. Applications must check for zero and release accordingly.
    - The Slab and Virtual Pools layers have been merged.
* Command Interface
  + - Updated API for: cmdif\_open() and cmdif\_session\_open(), cmdif\_srv\_cmd(), cmdif\_async\_cb()
    - GPP need not convert virtual addresses to physical when SMMU is enabled.
* Network Interface
  + - DPNI APIs have been changed to align with MC API.
    - The API for setting/getting NI Maximum Frame Length was modified.
* Environment
  + - Sample layout file was updated.
    - Linker file was updated.
    - Search paths were added to the compiler flags in .cproject.
    - Simulator configuration file has been updated.
* Table SR
  + Added a note to table\_create() parameters that max rules must not be 0.
  + Added notes that some of the pointer must point to structures in the workspace (e.g. not SRAM).
  + Aging and auto removal of rules because of aging were removed.
  + Removal of reference counter auto-decrement.
  + Added a comment regarding deletion of table that contains a miss result of type reference pointer.
  + Added documentation regarding the key ID parameter for both table\_lookup\_by\_keyid() and table\_lookup\_be\_keyid\_default\_frame() functions.
  + Added a remark that key size must be fixed per table.
* Parser
  + The Parser supports the Parser Block Guide version 3.090.
  + The parser supports CTLU spec 0.7.4.
  + The function parse\_result\_generate\_basic() was added.
* TMAN
  + Removed recharge function due to HW scope reduction.
  + Changed timer delete function and TMI delete function to support HW Errata ERR008205
  + Changed TMI create function to support HW Errata ERR008234
* There is no support in flow-id when calling dpni\_drv\_register\_rx\_cb() or dpni\_drv\_unregister\_rx\_cb().

1. Quick Start with this release

Please see the README.txt file at aiopsl\build\aiop\_ sim\apps\app\_process\_packet\src\ for running instructions.

1. Contact Information

* Mail List: **AIOPSREL**
* Bug Reporting [Clear Quest](http://cq.freescale.net/cqweb/) BINs: **LS-AIOP-LOW-LEVEL** and **LS-ARENA**

1. Bug Fixes

The following bugs have been fixed since version 0.4.3:

* slab\_release() programmer error detection. (ENGR00307395)
* slab\_debug\_info\_get() programmer error detection. (ENGR00312975)
* The slab\_debug\_info\_get() command does not check the validity of the slab being queried.  (ENG00312975)
* In number or entries per rule calculation, rule is assumed to be a chain of EME36...EME36 EME16 instead of EME44EME36...EME36 EME16 (ENGR00329133)
* EOFH error test in table lookup keyid (ENGR00330924)
* Only 255 KeyID can be created instead of 256 (ENGR00326075).
* The extraction header is random value when generic extract from the parse result (ENGR00326537).
* OSM scope enter from level 0 aborted (ENGR00324136).
* Parser (simulator) doesn't set "UDP Present" bit when UDP checksum is 0 (ENGR323148).
* Parser (simulator): The parse result doesn't return the expected values of ip\_n\_unknown\_protocol field (ENGR00322928).
* Parser (simulator): Parser returns truncation error when CFI field is set (ENGR00323090).
* The miss rule cannot be found while getting miss result in LPM table (ENGR00326525).
* The miss rule cannot be found after its miss result has been replaced (ENGR00322445).
* NORSC bit is not set as expect in table\_rule\_create\_or\_replace(0x6d) command (ENGR00326542).
* TLUMISS test in rule query command (ENGR00321926).
* Context buffers of IPR are not released to the pool (ENGR00333619)
* STE error due to misalignment in the struct ipr\_instance (ENGR00334417).
* Allocation from System DDR is not yet supported.

1. Known Limitations/ Issues

## General Limitations

* The fsl\_os\_print() function is limited to strings smaller than 80 characters when called at runtime.
* Slab creation does not support additional buffers beyond the committed number (i.e. only extra\_buffs=0 is currently supported).
* The number of tasks per core should not be set to a value greater than 4 since some AIOP SL functions have not yet been optimized for minimal stack usage.
* IPR statistics are not supported.
* The Parser does not support the Invalid HXS error code (shown in the Parser Block Guide version 3.090).
* Packets without L2 Ethernet header are not supported due to a hardware bug (TKT237150).
* The SEGMENT\_OFFSET field in the Presentation Context must be set to 0. This means that a frame must be presented from its first byte.

## Known problems

* OSM errors are not supported due to a compiler bug (CQ 331757).
* IPR test would run abnormally if setting Inlining option to Smart when building AIOPSL code (ENGR333076).

## Tools known issues

The below are known simulator and other tools issues which cause limitations in the Service Layer.

* CTLU :
  + LPM Lookup after EOFH hits a general rule instead of the miss result (ENGR334311)
* Parser
  + Parser continues parsing beyond fragment header in a non-initial IPv6 fragment (ENGR334007). As a result parse results (including running sum) are incorrect.
* The AIOP SL code should not be compiled with optimization level 0 due to a compiler issue.

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