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| **Freescale Semiconductor** | Document |
| LDPAA AIOP SERVICE LAYER | Number: AIOPSLRN |
| Release Notes for LDPAA AIOP Service Layer v0.6.0 | Doc. Rev. 0.1 Mar 31, 2015 |

**LDPAA AIOP SERVICE LAYER V0.6.0**

**Release Notes**

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1. Overview

This document describes the main updates included in the LDPAA AIOP Service Layer v0.6.0 as compared with v0.5.4.0

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.

This release can be retrieved from GIT:

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

GIT tag: **aiop\_release\_0.6.0**

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

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

1. Compatibility List

This release is compatible with the following SW, HW, Tools:

|  |  |
| --- | --- |
| **SW/HW/Tool** | **Version** |
| LS2085A QDS/RDB | Rev1 |
| CW for DPAA | CW\_NetApps\_v2015.04Alpha2 |
| Simulator | M131 |
| MC Firmware | 0.6.0 |
|  |  |

1. New Features

The following new features have been added since version v0.5.4.0:

* Memory Management
  + Configurable Shared SRAM heap size (ENGR348742)
* Network Interfaces
  + Configure-able Storage Profiles (ENGR341185, ENGR348719)
  + Configure-able NI attributes (ENGR346752)
  + DPNI enable/disable API (ENGR301510)
  + DPNI attributes queries (ENGR288715, ENGR344464)
  + DPNI statistics queries (ENGR288717)
  + DPNI link state query (ENGR341214)
  + Max number of DPNIs query (ENGR288716)
  + Handle dpni\_drv\_send() returned error for:
    - High Function NIC.
    - All demos.
* TMan
  + Added second granularity define to the create timer.
  + Added sl\_tman\_expiration\_task\_prolog().
* IPR
  + Handling SR errors.
* Error Handling
  + Added alignment check for all relevant SRs/FMs under debug define.
* Performance optimizations
  + IPsec
  + Inlining for all SRs used by complex IP forwarding (according to ENGR352782).
  + Table: Performance optimization for switch case in acceleration return.
* Stack optimizations
  + IPR
  + Changed the TMAN exception handler.

1. Changes

The following are changes from version v0.5.4.0:

* The layout file has been updated.
* The GPP-AIOP Shared Buffer Pool APIs have been updated. (ENGR351180)
* The apps.h file has been modified.
* Command Interface header file names and locations have been updated.
* GPP-AIOP Shared buffer pool header file names and locations have been updated.
* Network Interface APIs have been updated.
* Alignment requirements were added to many SRs and FMs.
  + Added comment on the required counter alignment in the STE API.
* IPsec API has been updated.
* High Function NIC:
  + Allocated 100 buffers for IPR contexts per NIC.

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

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 are bugs fixed in this release since version v0.5.4.0

* Log Buffer
  + AIOP log to RAM ‘END’ marker incorrect (ENGR350680)
* KeyGen
  + Valid Field takes 2 bytes in KCR instead of only 1 byte (ENGR350116)
* Table
  + Table delete will not work on the device (ENGR346557)
* IPsec
  + Clear the PRC ASA Size, since the SEC does not preserve the ASA (ENGR353336)
  + SEC error return codes (ENGR347888)

1. Workarounds for HW Bugs

The following SW workarounds have been added in this release.

* FDMA
  + This release fixes the WA for TKT254401 (set FD.bpid in create\_frame and create\_fd Service Routines).
  + FDMA replicate functions can be called in order to replicate non-empty frames only (due to TKT258499).
* Parser
  + Removed Parser WA for TKT254635 (CTLU spec - requirement of data alignment). Instead do the following:
    - FDMA SRs which implicitly compute representation address do not relocate segment on representing in order to keep former segment alignment.
    - Added FDMA documentation alignment restrictions due to TKT254635.
    - IPF – each fragment’s segment is presented in the presentation address of the original frame, in order to keep former segment alignment.
* STE
  + Removed all STE error related defines and macros due to HW ticket TKT255485.
* IPsec
  + Added Next Header setting through DPOVRD for tunnel mode encap. (due to SEC issue TKT258803)

1. Known Limitations/ Issues

## General Limitations

* The fsl\_os\_print() function is limited to strings smaller than 80 characters when called at runtime.
* 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.
* The maximum key size allowed is 80 bytes due to a hardware bug (TKT231187).
* Presentation size should not exceed 256 bytes due to a CTLU HW bug (TKT228731).

## Known problems

* FDMA
  + FDMA errors are not verified.
  + FDMA create\_frame: creating a new frame larger than 64 bytes overwrites the 64th byte when the frame is stored (TKT258520).
* Header Manipulation
  + HM errors are not verified.
* Keygen:
  + Only FECIDs 0 to 23 were verified.
* TMAN:
  + TMAN\_TMI\_BUS\_ERR is still not verified.
  + tman\_create\_timer function EBUSY error cannot be verified in the simulator.
  + TMAN\_TMI\_PURGED Fatal error cannot be verified on the simulator.
* CDMA
  + The following CDMA errors cannot be verified by the simulator:
    - CDMA\_INTERNAL\_MEMORY\_ECC\_ERR
    - CDMA\_SYSTEM\_MEMORY\_READ\_ERR
    - CDMA\_SYSTEM\_MEMORY\_WRITE\_ERR
    - CDMA\_INTERNAL\_ERR
  + The following CDMA errors cannot be verified:
    - CDMA\_MUTEX\_LOCK\_FAILED
    - CDMA\_INVALID\_DMA\_COMMAND\_ARGS\_ERR
    - CDMA\_REFCOUNT\_INCREMENT\_ERR
* OSM
  + The following OSM errors cannot be verified:
    - Relinquish concurrent
    - Enter scope exhausted
    - Duplicate scope identifier detected
* Parser:
  + PARSER\_HW\_STATUS\_INVALID\_SOFT\_PARSE\_INSTRUCTION error is not covered since there is no way to download code to the parser memory.
* IPsec:
  + Copy DSCP from inner header to outer header is not supported. (ENGR341311)
  + Only basic testing was done on LS2 silicon, which does not cover the full features nor algorithms.

IPsec Supported Algorithms:

|  |  |  |
| --- | --- | --- |
| ​**Authentication Algorithm** | ​**Tunnel Mode** | **Transport Mode**​ |
| ​NULL | ​No | No​ |
| ​HMAC\_MD5\_96 | ​Yes | ​Yes |
| ​HMAC\_SHA1\_96 | ​Yes | ​Yes |
| ​AES\_XCBC\_MAC\_96 | ​Yes | ​No |
| ​HMAC\_MD5\_128 | ​Yes | ​Yes |
| ​HMAC\_SHA1\_160 | ​Yes | ​Yes |
| ​AES-CMAC-96 | ​No | ​No |
| ​HMAC\_SHA2\_256\_128 | ​Yes | ​Yes |
| ​HMAC\_SHA2\_384\_192 | ​Yes | ​Yes |
| ​HMAC\_SHA2\_512\_256 | ​Yes | ​Yes |

|  |  |  |
| --- | --- | --- |
| **​Encryption Algorithm** | **​Tunnel Mode** | **​Transport Mode** |
| ​DES | ​Yes | ​​Yes |
| ​3DES | ​Yes | ​​Yes |
| ​NULL | ​Yes | ​​Yes |
| ​AES-CBC | ​Yes | ​Yes |
| ​AES-CTR | ​​Yes | ​​Yes |
| ​AES-CCM-8 | ​​Yes | No |
| ​​AES-CCM-12 | ​​Yes | No |
| ​​AES-CCM-16 | ​​Yes | No |
| ​​AES-GCM-8 | ​​Yes | No |
| ​​AES-GCM-12 | ​​Yes | No |
| ​​AES-GCM-16 | ​​Yes | No |
| ​AES-NULL-WITH-GMAC | ​​No | ​No |

## Tools known issues

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

* Keygen:
  + Valid field bits of key composition are flipped (ENGR349249).
* ​​IPsec
  + The ccm8/ccm12/ccm16/gcm8/gcm12/gcm16 get into endless loop in transport mode (ENGR353496).
  + Inaccurate byte count for NULL cipher algorithm (ENGR352694).

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