

Intel[®] QuickAssist Technology Software for Linux*

Package Version: QATmux.L.2.6.0-60

Release Notes

March 2016



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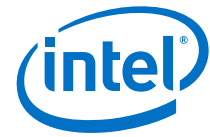
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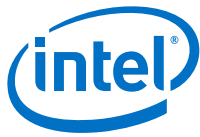
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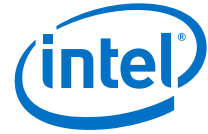
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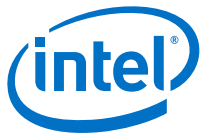
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Revision History

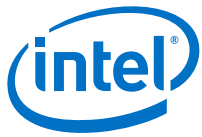
Date	Revision	Description
March 2016	010	<p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Open</p> <ul style="list-style-type: none"> IXA00394217 IXA00395916 <p>Resolved</p> <ul style="list-style-type: none"> IXA00387764 IXA00392515 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series and/or Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure:</p> <p>Resolved</p> <ul style="list-style-type: none"> IXA00387832 IXA00392516 <p>Change bars indicate areas of change.</p>
September 2015	009	<p>Added information for the Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure.</p> <p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Open</p> <ul style="list-style-type: none"> IXA00374049 IXA00392515 <p>Resolved</p> <ul style="list-style-type: none"> IXA00373987 IXA00388141 IXA00389436 IXA00389480 IXA00389876 IXA00390035 IXA00390046 IXA00390133 IXA00390156 IXA00392595 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series:</p> <p>Open</p> <ul style="list-style-type: none"> IXA00392516 IXA00392717 <p>Resolved</p> <ul style="list-style-type: none"> IXA00388840 IXA00389008 IXA00389842
June 2015	008	Added Section 1.6, "Technical Support" on page 14.



Date	Revision	Description
May 2015	007	<p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00389436 • IXA00389480 • IXA00389876 • IXA00390046 • IXA00390133 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00387764 • IXA00388141 • IXA00389007 • IXA00390035 • IXA00390156 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00389842 • IXA00390476 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00387832 • IXA00388840 • IXA00389008
February 2015	006	<p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00388616 • IXA00388742 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00387365 • IXA00387605 • IXA00387642 • IXA00388203 • IXA00388273 • IXA00388687 • IXA00388702 • IXA00388728 • IXA00388945 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00388840 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00373970 • IXA00382936 • IXA00386517 • IXA00388846



Date	Revision	Description
November 2014	005	<p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00387605 • IXA00387642 • IXA00388141 • IXA00388203 • IXA00388273 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00381319 • IXA00384677 • IXA00384678 • IXA00386453 • IXA00387115 • IXA00387202 • IXA00387500 • IXA00387537 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • N/A <p>Resolved</p> <ul style="list-style-type: none"> • IXA00384936 (renamed from IXA00386714) • IXA00386714 • IXA00387310 • IXA00387481 • IXA00388387 • IXA00388394
October 2014	004	<p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Resolved</p> <ul style="list-style-type: none"> • IXA00385624 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series:</p> <p>Resolved</p> <ul style="list-style-type: none"> • IXA00382601 <p>Updated Section 5.0, "Frequently Asked Questions" on page 84.</p>
September 2014	003	<p>Added the following errata for the Intel® Communications Chipset 8925 to 8955 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00387764 • IXA00387537 • IXA00387500 • IXA00387365 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00383481 • IXA00387091 • IXA00387238 <p>Added the following errata for the Intel® Communications Chipset 8900 to 8920 Series:</p> <p>Open</p> <ul style="list-style-type: none"> • IXA00387832 <p>Resolved</p> <ul style="list-style-type: none"> • IXA00384087 • IXA00383390 • IXA00383454 • IXA00382999 • IXA00382998 • IXA00382623
August 2014	002	<p>Added the following errata for Intel® Communications Chipset 8925 to 8955 Series:</p> <ul style="list-style-type: none"> • IXA00387193 • IXA00387238 • IXA00387260



Date	Revision	Description
July 2014	001	Initial release of document. Based on information in: <ul style="list-style-type: none">• Intel® Communications Chipset 8925 to 8955 Series Software Release Notes (523129)• Intel® Communications Chipset 8900 to 8920 Series Software Release Notes (441779) Errata information updated since the last published version of the documents above is shown with changebars.

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1.0 Description of Release

This document describes extensions and deviations from the release functionality described in the software Programmer's Guides for the various platforms that support Intel® QuickAssist Technology.

Changes in this software release include:

- Dynamic compression enabled
 - Compression levels have been simplified. Instead of nine compression levels together with two possible values for deflate window size, this has been reduced to four levels.
 - The API uses the structure `CpaDcSessionSetupData` to provide compression parameters.
 - The `compLevel` field provides the compression level. If a value between `CPA_DC_L5` and `CPA_DC_L9` is given it will be silently converted to the value `CPA_DC_L4`.
 - The `deflateWindowSize` field will be ignored.
 - For Compression Level 1, `deflateWindowSize` will be automatically set to 32K internally by the driver. For Levels 2 to 9, `deflateWindowSize` will be set to 8K internally by the driver.
- "-13" error reporting enabled; this is an option to enable parity error (-13) reporting during compression operations; in the [GENERAL] section of the device acceleration configuration file, add: `ReportParityCompressionError = 1`

For instructions on loading and running the release software, see the Getting Started Guide for your platform (see [Section 2.3, "Related Documentation" on page 16](#)).

Note: Coexistence, via the mux layer, of QAT1.6 and QAT1.7 devices has not been validated for this release, and the mux layer (which enables coexistence of QAT1.6 and QAT1.7 devices) is expected to be removed from future versions of the software package. Please contact your Intel representative with any concerns.

Note: This software release is intended for platforms that contain:

- Intel® Communications Chipset 8900 to 8920 Series
- Intel® Communications Chipset 8925 to 8955 Series
- Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

Note: The Intel® QuickAssist Technology API for kernel space access is currently in the process of being deprecated in favor of making the Intel® QuickAssist Technology services available directly from the Linux kernel, including using the Linux Kernel Crypto framework. User space access is not affected.

These release notes may also include known issues with third-party or reference platform components that affect the operation of the software.



1.1 Features/Limitations

The main features of the software package are:

Table 1. Features of Platforms Using Intel® QuickAssist Technology

Feature/Limitation	Intel® Communications Chipset 8900 to 8920 Series	Intel® Communications Chipset 8925 to 8955 Series	Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure
Cryptographic Services	•	•	•
Data Compression Services	•	•	
Cryptographic Sample Applications	•	•	•
Data Compression Sample Applications	•	•	
Intel® QuickAssist Technology Data Plane Cryptographic API (cpa_cy_sym_dp.h)	•	•	•
Intel® QuickAssist Technology Data Plane Data Compression API (cpa_dc_dp.h)	•	•	
Heartbeat Feature	•	•	•

1.2 Supported Operating Systems

The software in this release has been validated against the operating systems given in the following table on the Customer Reference Boards (CRBs) for the following products:

- Intel® Communications Chipset 8900 to 8920 Series
- Intel® Communications Chipset 8925 to 8955 Series
- Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

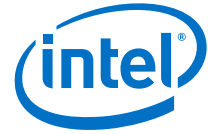
Note: While the Intel® QuickAssist Accelerator software is validated on Fedora* 16, CentOS 7, and Yocto* on the respective platforms, it should work without change on some other Linux* distributions and kernels.

Table 2. Operating System Support

Operating System	Intel® Communications Chipset 8900 to 8920 Series	Intel® Communications Chipset 8925 to 8955 Series	Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure
Fedora* 16 (32-bit and 64-bit)	•	•	
CentOS 7 (64-bit)	•	•	
Linux* (Yocto*)			•

1.2.1 Version Numbering Scheme

The software is provided in a top-level package that contains sub-packages for the various supported platforms.



The version numbering scheme for all package levels is the similar:
name.os.major.minor.maintenance-build

Where:

- *name* is the name of the package:
For the top-level package, the name is “QATmux”
For sub-packages, name is one of the following:
 - “QAT1.5” for use with Intel® Communications Chipset 8900 to 8920 Series or Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure
 - “QAT1.6” for use with Intel® Communications Chipset 8925 to 8955 Series
- *os* is the operating system, in all cases, “Linux*”, denoted by ‘L’
- *major* is the major version of the software
- *minor* is the minor version of the software
- *maintenance-build* is the maintenance release and build number

1.2.2 Package Versions

The following table shows the OS-specific package versions for each platform supported in this release.

Chipset or SoC	Package Version
Top-Level Package	QATL.2.6.0-60.tar.gz
Intel® Communications Chipset 8900 to 8920 Series	QAT1.5.L.1.11.0-36.tar.gz
Intel® Communications Chipset 8925 to 8955 Series	QAT1.6.L.2.6.0-65.tar.gz
Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure	QAT1.5.L.1.11.0-36.tar.gz

Note: For compatibility between QAT driver versions running on Host and Guest on a Virtualized Platform, see *Using Intel® Virtualization Technology (Intel® VT) with Intel® QuickAssist Technology Application Note* referenced in [Table 4](#).

1.2.3 Licensing for Linux* Acceleration Software

The acceleration software is provided under a dual BSD/GPLv2 license with a few exceptions as listed in [Table 3](#). When using or redistributing dual licensed components, you may do so under either license.



Table 3. Linux* Acceleration Software Licensing Files

Directory Name	License Used	Content Description
./quickassist/utilities/osal/thirdparty/openssl/include/*	OpenSSL	These are OpenSSL header files used for software-based hash pre-computes used with algorithm chaining. These hash pre-computes can be performed in hardware if needed. Refer to the Programmer's Guide for additional information.
./quickassist/lookaside/access_layer/src/sample_code/functional/sym/ssl_sample/*	GPLv2	Functional sample application illustrating the usage of Intel® QuickAssist Technology APIs in an ssl application.
./quickassist/utilities/osal/src/linux/kernel_space/*	GPLv2	Kernel space implementation of OS abstraction layer (OSAL). These functions are used only with the kernel space driver (icp_qa_al.ko). In user space, the OSAL layer source files are dual licensed.

1.2.4 BIOS/Firmware Version

The term BIOS is used to refer to pre-boot firmware that could include legacy BIOS or Extensible Firmware Interface (EFI) compliant firmware.

It is important to update your platform so that it uses the latest available version of the BIOS/firmware that is available for that platform.

1.2.5 MD5 Checksum Information

The table below gives MD5 checksum information.

	Package	Checksum
Main Package	QATmux.L.2.6.0-60.tar.gz	c54e877fb9fbb4690a9bd50793268bcf

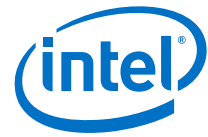
1.3 Intel® QuickAssist Technology Driver Information

To obtain driver information, use the command below corresponding to your chipset or SoC device:

- For Intel® Communications Chipset 8900 to 8920 Series:
cat /proc/icp_dh89xxcc_dev0/version
- For Intel® Communications Chipset 8925 to 8955 Series:
cat /proc/icp_dh895xcc_dev0/version
- For Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure:
cat /proc/icp_c2xxx_dev0/version

The following is example output when using the Intel® Communications Chipset 8925 to 8955 Series. The output is similar for other devices.

```
[root@localhost build]# cat /proc/icp_dh895xcc_dev0/version
+-----+
| Hardware and Software versions for device 0 |
+-----+
```



```

Hardware Version:          A0 SKU1
Firmware Version:         2.6.0
MMP Version:              1.0.0
Driver Version:           2.6.0
Lowest Compatible Driver: 2.3
QuickAssist API CY Version: 1.9
QuickAssist API DC Version: 1.6

```

```

+-----+
[root@localhost build]# cat /proc/icp_dh89xxcc_dev0/version
+-----+
| Hardware Software and API versions for device 0 |
+-----+
Hardware Version:          C0 SKU4
Firmware Version:         1.11.0
MMP Version:              1.0.0
Driver Version:           1.11.0
QuickAssist API CY Version: 1.9
QuickAssist API DC Version: 1.6
+-----+

```

1.4 Intel® QuickAssist Technology API Updates

Note: The QAT API version number is different from the software package version number.

For details on any changes to the Intel® QuickAssist Technology APIs, refer to the Revision History pages in the following API reference manuals:

- Intel® QuickAssist Technology Cryptographic API Reference Manual
API Version 1.9
- Intel® QuickAssist Technology Data Compression API Reference Manual
API Version 1.6¹

1.5 Patch Support

This release supports Intel-provided patch software for selected frameworks and applications such as OpenSSL and zlib. Supported patches are available on the 01.org website in the same location as the release software.

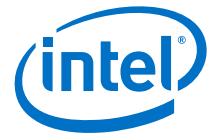
1. Not applicable to the Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure since the Data Compression service is not supported on these SoCs.



1.6 Technical Support

Intel offers support for this software at the API level only, defined in the programmer's guides and API reference manuals listed in [Section 2.3](#). If your field representative has created an account for you, support requests can be submitted via <https://premier.intel.com>.

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2.0 Where to Find Current Software

The software release and associated collateral can be found on the Intel's Open Source Technology Centre (<https://01.org>). See the access instructions following.

2.1 Accessing the Software

1. In a web browser, go to <https://01.org/packet-processing/intel%C2%AE-quickassist-technology-drivers-and-patches>.
2. Scroll down to the table of ATTACHMENTS.
3. Click on the QATmux.L.<version>.tgz link. The browser asks you if you want to download the file.
4. Save the file in the directory of your choice.
5. Unpack and install the software using the instructions in your platform's Getting Started Guide.

Note: The documentation related to the software is also available at the link in step 1.

For Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure, additional documentation and software packages are available as described in the section following.

2.1.1 Accessing Additional Software for Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

1. In a web browser, go to www.ibl.intel.com.
2. Enter your login ID in the **Login ID** box. Check **Remember my login ID** only if you are not using a shared computer. Click **Submit**.
Note: To acquire a new Intel Business Portal account, please contact your Intel Field Sales Representative.
3. Enter your password in the **Password** box. Click **Submit**.
4. Within the Design Kit Categories, under the **Platform & Solutions** heading, click **Embedded**.
Under the **Performance Platforms** heading, click **Embedded Platform Code Named Rangeley for Communications and Embedded Applications**.
 - a. For Intel® Atom™ Processor platform information, under the **Associated Collateral Lists** heading, click **Embedded Platforms: Rangeley/Avoton Platform - Platform**. This collateral list contains the product documentation listed in [Table 8](#).
 - b. For the Intel® Data Plane Development Kit (Intel® DPDK) software, under the **Associated Collateral Lists** heading, click **Embedded Software: Intel® Data Plane Development Kit - Technical**. This collateral list contains product documentation listed in [Table 9](#).



- c. For the Edisonville collateral, under the **Associated Collateral Lists** heading, click **Microserver Platform Code Named Edisonville - BIOS, Software and Tools**. This collateral list contains the product documentation listed in [Table 10](#).

2.2 List of Files in Release

The Bill of Materials, sometimes referred to as the BOM, is included as a text file in the released software package. This text file is labeled `filelist` and is located at the top directory level for each release.

2.3 Related Documentation

Table 4 lists Intel® QuickAssist Technology generic documentation.

Table 4. Intel® QuickAssist Technology Documentation

Document Name	Reference Number
Intel® QuickAssist Technology API Programmer's Guide	330684
Intel® QuickAssist Technology Cryptographic API Reference Manual	330685
Intel® QuickAssist Technology Data Compression API Reference Manual	330686
Intel® QuickAssist Technology Performance Optimization Guide	330687
Intel® QuickAssist Technology Acceleration Software OS Porting Guide	330688
Using Intel® <i>Virtualization Technology (Intel® VT)</i> with Intel® <i>QuickAssist Technology Application Note</i>	330689

Table 5 lists Intel® Communications Chipset 8900 to 8920 Series specific documentation.

Table 5. Intel® Communications Chipset 8900 to 8920 Series Software Documentation

Document Name	Reference Number
Intel® Communications Chipset 8900 to 8920 Series Software for Linux* Getting Started Guide	330752
Intel® Communications Chipset 8900 to 8920 Series Software Programmer's Guide	330753
Intel® Communications Chipset 89xx Series FIPS Certification Guide	473819

Table 6 lists Intel® Communications Chipset 8925 to 8955 Series specific documentation.

Table 6. Intel® Communications Chipset 8925 to 8955 Series Software Documentation

Document Name	Reference Number
Intel® Communications Chipset 8925 to 8955 Series Software for Linux* Getting Started Guide	330750
Intel® Communications Chipset 8925 to 8955 Series Software Programmer's Guide	330751
Intel® Communications Chipset 89xx Series FIPS Certification Guide Addendum for SKUs 8925 to 8955	523125



Table 7, Table 8, Table 9 and Table 9 list Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure specific documentation.

Table 7. Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure Software Documentation

Document Name	Reference Number
Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure for Linux* Getting Started Guide	330754
Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure Programmer's Guide	330755
Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure FIPS Certification Guide	523472

Table 8. Rangeley/Avoton Platform - Platform Documentation

Document Name	Reference Number
Mohon Peak Customer Reference Board User's Guide	514980

Table 9. Intel® Data Plane Development Kit - Technical Documentation

Document Name	Reference Number
Intel® Data Plane Development Kit (Intel® DPDK) - Release 1.5.0 - Code & Docs This zip file includes the code and all documentation for the Intel® DPDK including: Release Notes, Programmer's Guide, API Reference, Getting Started Guide and Sample Applications User Guide	537507
Intel® Data Plane Development Kit (Intel® DPDK) Release Notes Addendum for the Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure	518900

Table 10. Microserver Platform Code Named Edisonville - BIOS, Software and Tools Documentation

Document Name	Reference Number
Mohon Peak CRB (Customer Reference Board) - BIOS Images	518736
Avoton/Rangeley SoC Linux Kernel Patch for ESO and ES1 Silicon - Technical Advisory	518578
Intel® Avoton Ethernet – Edisonville and Rangeley PV - Networking Software Drivers	537330
Intel® Network Connections Tools, PV – LAN Software Tools	348742
Intel® Atom C2000 GbE eeproms – Rev. 1.05	516867

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3.0 Intel® Communications Chipset 8925 to 8955 Series Software - Issues

Known and resolved issues relating to the Intel® QuickAssist Technology software are described in this section.

Note:

Issue titles follow the pattern: **Identifier - <Component> [Stepping] : Description of issue** where:

<Component> is one of the following:

- CY - Cryptographic
- DC - Compression
- EP - Endpoint
- GEN - General
- SYM DP - Symmetric Cryptography on Data Plane
- SRIOV - Single Root I/O Virtualization
- FIRM - Firmware

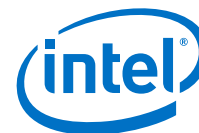
[Stepping] is an optional qualifier that identifies if the errata applies to a specific chipset device stepping.

3.1 Known Issues for Intel® Communications Chipset 8925 to 8955 Series

The known issues in the current release are listed below.

Table 11. Summary of Known Issues

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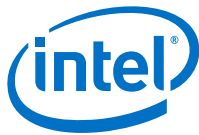
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3.1.1 IXA00374049 - GEN: The driver fails to send requests if the first ring put operation returns a retry or a failure when using partial symmetric crypto operations -

Title	GEN: The driver fails to send requests if the first ring put operation returns a retry or a failure when using partial symmetric crypto operations
Reference #	IXA00374049
Description	The driver can enter a deadlock state due to improper locking when using symmetric crypto operations with partial packets. This occurs when there is heavy traffic and the 1st request receives a retry or a failure when it tries to send a message to the ring.
Implication	When using the application server and using symmetric crypto operations with partial packets then it is possible to receive a retry when trying to send the first request, causing the nonBlockingOpsInProgress to be set to false. The callback function for the 1st response won't be called causing all the requests for this session to be en-queued and none can be de-queued and sent to the ring until the the client and application server stop communicating. Application server has connection leaks when the client send lots of request at the same time. When the client stops sending requests, there are many "active connection" left in the application server.
Resolution	This is resolved in R2.5.0.
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.1.2 IXA00382717 - SRIOV: VF will have invalid SKU and capability info for SKU3 -

Title	SRIOV: VF will have invalid SKU and capability info for SKU3
Reference #	IXA00382717
Description	When using the Intel® Communications Chipset 8926 (SKU3) that supports data compression (DC) only, the acceleration driver in the VF does not have data about the device SKU and capability set. Consequently, it defaults to assuming that it has full device capabilities, that is, it has support for data compression (DC) and crypto (CY).
Implication	An acceleration driver running on a data compression only SKU (SKU3) on a VF will not behave correctly if configured to run a crypto service. Since the device does not support crypto, the driver should fail to start and report a crypto not supported error. Instead, the device starts, but any crypto content sent to the accelerator using the QA API will be dropped.
Resolution	Ensure that for a SKU3 device (data compression only SKU), the config file has ServicesEnabled = dc.
Affected OS	Linux
Driver/Module	ADF - User Mode



3.1.3 IXA00383477 - DC: Compression sample code does not demonstrate how to handle stateful compression overflow on deflate -

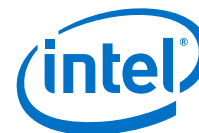
Title	DC: Compression sample code does not demonstrate how to handle stateful compression overflow on deflate
Reference #	IXA00383477
Description	When using stateful compression with data that does not compress, it is possible to get an overflow if the user performs a deflate and has not provided an output buffer large enough to contain all of the data. The stateful sample code does not demonstrate to the user how to handle an overflow in this situation. The stateful sample code does demonstrate how to handle an overflow in a similar situation on an inflate operation, but needs updating to also show how to handle the deflate.
Implication	Without this change, it is unclear to the user that an overflow may occur on a stateful deflate operation and how they should handle the situation.
Resolution	The user currently has to determine what to do from the acceleration driver API and/or from the Zlib Shim.
Affected OS	Linux
Driver/Module	CPM IA – Sample Code

3.1.4 IXA00383480 - GEN: Firmware Mismatch with 32-bit App on 64-bit OS -

Title	GEN: Firmware Mismatch with 32-bit App on 64-bit OS
Reference #	IXA00383480
Description	Note, this bug has not been seen in any DH895xcc release, but is theoretically possible due to a known bug in NUMA memory allocation. This bug will be fixed in a future release. Symptom when seen on a DH89xxxx release: When attempting to run the 32-bit sample code on 64-bit Linux, in some cases the driver may report a firmware mismatch error, for example: ./cpa_sample_code signOfLife=1 [error] LacPke_VerifyMmpLib() - : Error in LAC initialisation. Compiled firmware version (0x972DED54) does not match loaded firmware version (0x00000000)
Implication	If this occurs, the driver will not start.
Resolution	Restarting the driver is a possible workaround for this issue.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.1.5 IXA00384101 - GEN: Building the driver with LAC_HW_PRECOMPUTES is not supported in this version of the driver -

Title	GEN: Building the driver with LAC_HW_PRECOMPUTES is not supported in this version of the driver
Reference #	IXA00384101
Description	If the driver is built with the LAC_HW_PRECOMPUTES compiler option, the system may hang and/or crash.
Implication	The LAC_HW_PRECOMPUTES feature should not be used. Software precomputes, which are the default, must be used instead.
Resolution	Do not use the LAC_HW_PRECOMPUTES compiler option.
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym



3.1.6 IXA00385318 - DC: Error with stateful compression with CPA_DC_DIR_COMBINED -

Title	DC: Error with stateful compression with CPA_DC_DIR_COMBINED
Reference #	IXA00385318
Description	When the session direction is CPA_DC_DIR_COMBINED and the session is STATEFUL, the first decompression operation after at least one compression operation may not succeed.
Implication	Errors may be generated at the start of a session if mixing compression and decompression.
Resolution	Do not use CPA_DC_DIR_COMBINED with a STATEFUL session, or start the CPA_DC_DIR_COMBINED STATEFUL session with a complete compression and a complete decompression.
Affected OS	Linux
Driver/Module	CPM IA - Data Compression

3.1.7 IXA00386283 - GEN: cpaCyGetNumInstances()/cpaDcGetNumInstances() fails when QATmux loaded with some device types not present -

Title	GEN: cpaCyGetNumInstances()/cpaDcGetNumInstances() fails when QATmux loaded with some device types not present
Reference #	IXA00386283
Description	<p>The QATmux can interface to both QAT1.5 and QAT1.6 to bring up DH89xxcc and DH895xxcc devices. If a physical device is not present, the corresponding kernel space driver is usually not loaded, or is loaded but there are no corresponding devices up. In user space, a process will by default attempt to register both QAT1.5 and QAT1.6 drivers.</p> <p>If the QAT1.6 or QAT1.5 dynamic library is present in LD_LIBRARY_PATH this registration will succeed, whether the underlying kernel driver has brought a corresponding device up or not.</p> <p>However, when trying to use CY/DC instances, the cpaCyGetNumInstances()/cpaDcGetNumInstances() API will fail, preventing the use of the instance in the driver/devices that are loaded.</p> <p>By removing the dynamic library for the missing devices from the library path, mux registration will throw an error for that particular driver. In this case, the CY/DC instances on the QAT driver which succeeded to register will be available for use.</p> <p>See also IXA00386768</p>
Implication	The cpaCyGetNumInstances()/cpaDcGetNumInstances() API fails, preventing the use of the instance in the driver/devices that are loaded.
Resolution	<p>Remove libqat_1_5_mux.s.so from LD_LIBRARY_PATH if there are no DH89xxcc or C2xxx devices present.</p> <p>Remove libqat_1_6_mux.s.so from LD_LIBRARY_PATH if there are no DH895xxcc devices present.</p>
Affected OS	Linux
Driver/Module	CPM IA - Common



3.1.8 IXA00386532 - GEN: Multiprocess test failures observed -

Title	GEN: Multiprocess test failures observed
Reference #	IXA00386532
Description	It has been noticed that the multi-process tests can fail. On failure an unrecoverable error was reported. The test runs for one instance with multiple processes.
Implication	The problem has been root caused to the qaeMemDrv driver that is provided in the sample code. When running user space stress tests using the qaeMemDrv driver, it is possible that an invalid physical address is returned to the upper layer application. This can lead to a firmware hang or an uncorrectable error.
Resolution	This is a sample code issue, not a driver issue. If issue is seen try using a different memory driver.
Affected OS	Linux
Driver/Module	CPM IA - Sample Code

3.1.9 IXA00386643 - GEN: Driver -12 error occurs when configuring for PF/VF concurrency on some platforms -

Title	GEN: Driver -12 error occurs when configuring for PF/VF concurrency on some platforms
Reference #	IXA00386643
Description	When starting the driver on some platforms with CentOS6.4, with a build and configuration that supports SR-IOV and with service instances allocated to the PF, -12 error occurs.
Implication	Running sample code fails and generates un-correctable error messages.
Resolution	Driver -12 error occurs when calling a kernel function which attaches the virtual function to IOMMU domain fails to find the page directory from the systems page table. This issue was observed on Stargo platform running CentOS 6.4. One alternative is to add iommu=pt to the kernel command line in the GRUB.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.1.10 IXA00386732 - SRIOV: SIGINT to the sample code application running on host can cause a driver crash -

Title	SRIOV: SIGINT to the sample code application running on host can cause a driver crash
Reference #	IXA00386732
Description	It has been observed that when the system has been configured for virtualization (VT-d, SRIOV enabled and intel_iommu=on), sending SIGINT (via Ctrl+C) to the console that is running sample code on the host can cause a driver crash.
Implication	When monitoring "/var/log/messages", the user will observe a DMAR error. The user space application "adf_ctl down" will not be able to bring the driver down. A system reboot will be required.
Resolution	In lieu of application changes, do not use SIGINT to stop the sample code application under these conditions. Instead of doing CTRL+C, we recommend the following approach: - Do Ctrl+Z. This will hang the process. Do not send the process to the background. - Run the "ps" command to list the process ID. - Identify the process ID of the sample code. - Run "kill -9 <process ID of the sample code>".
Affected OS	Linux
Driver/Module	CPM IA - Common



3.1.11 IXA00386733 - GEN: Guest VM reboot issue after icp_reset_dev -

Title	GEN: Guest VM reboot issue after icp_reset_dev
Reference #	IXA00386733
Description	<p>After resetting the Device in the Host without warning the Guest, the Guest VF fails to run Sample Code and the FW hangs.</p> <p>Sequence:</p> <ul style="list-style-type: none"> - VF running acceleration (userspace sample code signOfLife) - On PF issue reset on dev0 - Reboot VM - Kick off acceleration on the VF <p>Results in:</p> <ul style="list-style-type: none"> - Host: FW hang detected. - Guest: sampleCodeSemaphoreWait():665 sample_code_semaphoreWait(): errno: 110 waitForResponses(): 1893 System is not responding.
Implication	Device should not be reset on the Host without first bringing the VF devices down on the VMs.
Resolution	Do adf_ctl down on all VF device on VMs before resetting the device on the Host.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.1.12 IXA00388616 - GEN: Config file NumProcesses issues when combining Kernel & User space instances on DH895xcc -

Title	GEN: Config file NumProcesses issues when combining Kernel & User space instances on DH895xcc
Reference #	IXA00388616
Description	<p>When combining Kernel and User space instances, each Kernel instance counts for 1 process. So the max number of processes per service in this scenario is :NumKernelSpaceInstances + (NumUserSpaceInstances*NumProcesses). However, in user space, if either NumberCyInstances or NumberDcInstances, but not both = 0, then the number of user processes for that service = 1 (should be 0). Also, when a dynamic instances section [DYN] exists, even if NumberCyInstances and NumberDcInstances = 0, the number of user processes = 1.</p>
Implication	If combining kernel and user space instances the max number of instances per service in either kernel or user space is 63. (not 64)
Resolution	<p>Avoid combining kernel and user instances on same device.</p> <p>When combining Kernel space and User space instances is necessary, the max number of instances per service = 63, if the other service is also being used.</p> <p>Delete the [DYN] section if no instances are required.</p>
Affected OS	Linux
Driver/Module	ADF - User Mode

3.1.13 IXA00388742 - DC: User space Dynamic Compression test causing firmware hang -

Title	DC: User space Dynamic Compression test causing firmware hang
Reference #	IXA00388742
Description	When running the sample code in a loop, we have observed that a firmware hang may occur.
Implication	The driver needs to be restarted in order to use further.



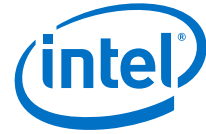
Title	DC: User space Dynamic Compression test causing firmware hang
Resolution	The issue has been root caused to the qaeMemDrv provided with the sample code. An invalid physical address is passed to the firmware causing a firmware hang. If issue is seen try using a different memory driver.
Affected OS	Linux
Driver/Module	CPM FW - Data Compression

3.1.14 IXA00394217 - Event based driver does not notify user application when RSA decryption done. -

Title	Event based driver does not notify user application when RSA decryption done.
Reference #	IXA00394217
Description	Running Openssl and nginx-1.6.2(OpenSSL as caqat_0.4.0 + Event driven changes and Nginx as nginx-0.1.1-002 patch The QuickAssist driver does not notify OpenSSL RSA decryption complete during the start of the handshake test to QAT server with 1~100 concurrent connections. This issue occurs when the QuickAssist driver is in event-based mode in user space - by setting each instance in the config file to CyxIsPolled =2
Implication	Connection timeout is seen during the handshake.apr_pollset_poll: The timeout specified has expired (70007)
Resolution	To workaround this issue ensure the driver has not been enabled for event-based notification in user space. In the config file ensure each instance is using standard polling by setting CyxIsPolled =1 for each instance. Nginx will also need to be recompiled and restarted to do this export \$EVENT_BASED_DRIVER to 0 and recompile Nginx to configure Nginx back to polling mode.
Affected OS	Linux
Driver/Module	CPM IA – Dynamic instances Crypto Aysm

3.1.15 IXA00395916 - DC: Decompression Failure, empty dynamic block reports -7 error -

Title	DC: Decompression Failure, empty dynamic block reports -7 error
Reference #	IXA00395916
Description	When user submits one or more valid empty dynamic blocks, compression slice returns -7 error code. Software implementations are able to decompress these block(s) successfully. An example of valid empty dynamic block: 04 c0 81 08 00 00 00 00 20 7f eb 13 00 00 ff ff
Implication	A -7 soft error will be reported on valid empty dynamic compressed block(s).
Resolution	No workaround available. It is extremely unlikely that compressed data would decompress to NULL.
Affected OS	Linux
Driver/Module	CPM FW - Data Compression



3.2 Resolved Issues for Intel® Communications Chipset 8925 to 8955 Series

This section contains issues resolved since package version 2.6.

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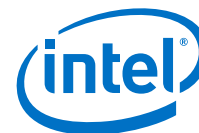
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3.2.1 IXA00168921 - SRIOV: Physical Function passthrough on VM Guest fails -

Title	SRIOV: Physical Function passthrough on VM Guest fails
Reference #	IXA00168921
Description	The pass-through of physical function to guest OS is not supported in this version of the acceleration driver.
Implication	Physical function passthrough on the VM guest fails. The PF driver (host driver) does not function on a VM.
Resolution	This is resolved in R1.1.0
Affected OS	Linux
Driver/Module	CPM IA – Virtualization Pass through



3.2.2 IXA00168943 - GEN: Under stress conditions kernel panic can occur -

Title	GEN: Under stress conditions kernel panic can occur
Reference #	IXA00168943
Description	Under stress conditions when running compression and crypto simultaneously kernel panic can occur. Errors similar to the following may be seen in dmesg: BUG: unable to handle kernel paging request at 0000004200000048 Feb 12 18:18:31 localhost kernel: [3454585.660185] IP: [<ffffffffa0375d7d>] dcCompression_ProcessCallback+0x1d/0x550 [icp_qa_al] Or Nov 30 15:04:39 localhost kernel: [193.677963] BUG: unable to handle kernel paging request at 0000004200000040 Nov 30 15:04:39 localhost kernel: [193.678099] IP: [<ffffffffa01ba4f1>] LacSymCb_ProcessCallback+0x21/0x380 [icp_qa_al]
Implication	The QuickAssist driver crashes
Resolution	This issue is resolved in R1.0.1
Affected OS	Linux
Driver/Module	CPM FW - Crypto

3.2.3 IXA00373987 - CY: cpaCySymRemoveSession fails in DP API if other active Session sharing ring -

Title	CY: cpaCySymRemoveSession fails in DP API if other active Session sharing ring
Reference #	IXA00373987
Description	If multiple sessions are sharing the same Crypto DP instance, then a call to cpaCySymRemoveSession() will fail if there are messages inflight from another session.
Implication	cpaCySymRemoveSession() may fail
Resolution	This is resolved in R2.5.0
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.4 IXA00381319 - CY: digestIsAppended option is not fully supported for Hash-Only operations -

Title	CY: digestIsAppended option is not fully supported for Hash-Only operations
Reference #	IXA00381319
Description	Digest Verify is not currently supported for appended digest in Hash-Only operations (i.e. within the CpaCySymSessionSetupData structure, if symOperation=CPA_CY_SYM_OP_HASH then setting both verifyDigest=TRUE AND digestIsAppended=TRUE is not supported).
Implication	Incorrect digest verify result.
Resolution	This is resolved in R2.1.1
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym



3.2.5 IXA00382664 - SRIOV: Instance not in a Running state when QAT is used in host OS and SRIOV is enabled -

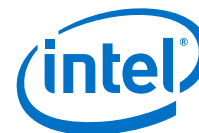
Title	SRIOV: Instance not in a Running state when QAT is used in host OS and SRIOV is enabled
Reference #	IXA00382664
Description	The driver prevents the usage of the Physical Function as accelerator if it is built with SRIOV support.
Implication	The driver will report the message "Instance not in a Running state" every time that a function of the QAT API is called from the host OS. Any content sent to the accelerator's Physical Function is dropped.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.6 IXA00382978 - GEN: Dynamic Instance QAT 32bit application on 64bit OS fail -

Title	GEN: Dynamic Instance QAT 32bit application on 64bit OS fail
Reference #	IXA00382978
Description	Dynamic instance allocation doesn't work if using cross-compilation, i.e. a 32bit user space process running on a 64bit kernel. The following error appears in the log files: allocDcDynamicInstaces():221 Error icp_sal_userDcInstancesAlloc for n dynamic instances For information on using Dynamic instances see Dynamic instance section of Programmer's Guide.
Implication	Instances in [DYN] section of config file should not be used in the cross-compilation case.
Resolution	This is resolved in R1.0.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.7 IXA00383041 - GEN: Max NumProcesses is limited to 32 -

Title	GEN: Max NumProcesses is limited to 32
Reference #	IXA00383041
Description	The maximum value for NumProcesses is limited to 32. i.e. ##### # User Process Instance Section ##### [SSL] NumberCyInstances = 0 NumberDcInstances = 1 NumProcesses = 33 LimitDevAccess = 1 gives the following error: [root@sie-lab-214-178 build]# ./adf_ctl icp_dev0 up Processing file: /etc/dh895xcc_qa_dev0.conf ADF_CONFIG_CTL err: adf_read_config_file: ERROR: NumProcesses must be less than or equal to the number of available banks for this device ADF_CONFIG_CTL err: adf_read_config_file: ERROR: dh895xcc has max banks 32. Up to 64 NumProcesses should be allowed as described in the Programmer's Guide, but max allowed is 32 in this release.
Implication	NumProcesses in .conf > 32 will not allow driver to start.



Title	GEN: Max NumProcesses is limited to 32
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.8 IXA00383361 - DC: High rates of simultaneous crypto and (de)compression operations may cause (de)compression to report a soft error and write an incorrect amount of data into the output buffer -

Title	DC: High rates of simultaneous crypto and (de)compression operations may cause (de)compression to report a soft error and write an incorrect amount of data into the output buffer
Reference #	IXA00383361
Description	<p>A soft error may be reported during some compression/decompression operations. This soft error indicates that an incorrect amount of data was written to the (de)compression output buffer in memory. It may not write enough data to memory or it may write too much data to memory.</p> <p>The issue is most likely to occur when running both symmetric cryptographic operations and compression/decompression operations at the same time with high request/traffic rates. When the issue occurs, the cryptographic operations are unaffected.</p> <p>The issue is highly unlikely to occur when running only compression/decompression operations (i.e. without concurrent cryptographic operations). The issue will not occur when running cryptographic operations alone.</p> <p>In the scenario where not enough data is written to the output buffer, data is missing and hence the compressed/decompressed data is incomplete and hence invalid.</p> <p>In the scenario where too much data is written to the output buffer, the compressed/decompressed output will be complete and valid, but additional bytes will have been written to the output buffer following the end of the compressed/decompressed data. The extra data written out may be earlier data from this request or previous crypto/compression requests (potential security vulnerability).</p> <p>Note: The returned output byte counters will be correct in all cases, but will not reflect the amount of data written when the issue occurs.</p> <p>When this issue occurs, the Intel® QuickAssist accelerator driver returns a soft error (CPA_DC_SOFTERR = -12) and also generates an error message in the log that says: "Non-fatal data transfer error detected".</p>
Implication	<p>If too little data is written, the compressed/decompressed data is incomplete and hence invalid.</p> <p>If too much data is written, the compressed/decompressed data is valid, but additional data is present in the output buffer.</p> <p>If the issue occurs, only Intel® QuickAssist accelerator compression/decompression operations are affected.</p>
Resolution	This issue is resolved in R1.0.1
Affected OS	Linux
Driver/Module	CPM IA - Common



3.2.9 IXA00383479 - GEN: Sample code may have errors due to qaeMemDrv issue -

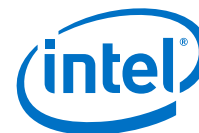
Title	GEN: Sample code may have errors due to qaeMemDrv issue
Reference #	IXA00383479
Description	Related to dh89xxcc issue IXA00382836. If running the sample code for 24 hours, there may be errors caused by a known bug in the qaeMemDrv. Note: This has not been seen on this DH895xcc release, only on an earlier DH89xxcc release, but it is theoretically possible. The fix to the qaeMemDrv will be provided in a future release.
Implication	The sample code may fail if run repeatedly.
Resolution	Installing the version of the qae memory driver supplied with the DH89xxCC QAT1.3 package should resolve the issue.
Affected OS	Linux
Driver/Module	CPM IA - Crypto

3.2.10 IXA00383481 - GEN: Installer script fails due to pci.ids file update -

Title	GEN: Installer script fails due to pci.ids file update
Reference #	IXA00383481
Description	The issue can occur if there has been a package update on Fedora 16. The lspci command uses the /usr/share/hwdata/pci.ids file to print additional information about the PCI devices in the system. If that file has been updated to match device ID 0435, the installer script fails to copy the config files to /etc. lspci needs to return the following for the installer script to work correctly: [root@localhost ~]# lspci grep 0435 02:00.0 Co-processor: Intel Corporation Device 0435 However, with the recent change to the pci.ids, this output is formatted differently causing the installer script to fail.
Implication	The device driver cannot be started with the installer script.
Resolution	This is resolved in R2.1.0.
Affected OS	Linux
Driver/Module	CPM IA - Sample Code

3.2.11 IXA00383555 - CY: AES XTS mode encrypted data is corrupted if payload not multiple of 16B -

Title	CY: AES XTS mode encrypted data is corrupted if payload not multiple of 16B
Reference #	IXA00383555
Description	AES XTS mode allows for payloads of variable size, not necessarily a multiple of the block size. The encrypted data can be corrupted if the payload is not a multiple of 16B.
Implication	AES XTS mode encrypted data can be corrupted if payload is not a multiple of 16B.
Resolution	This is resolved in R1.0.1
Affected OS	Linux
Driver/Module	CPM FW - Crypto



3.2.12 IXA00383764 - GEN: The acceleration driver does not support the full range of ring size configurations -

Title	GEN: The acceleration driver does not support the full range of ring size configurations
Reference #	IXA00383764
Description	The acceleration driver is currently limiting the max. size of a request/response ring to 256 KB (64K * DWords), which corresponds to 2048 x 128 byte messages. According to the DH895xCC specification, the hardware supports ring buffer sizes up to 1M Dwords (=4 MB) which corresponds to 32K x 128 byte messages.
Implication	This will impact the performance of the acceleration driver. The user will get a RETRY error during packet bursts.
Resolution	This is resolved in R1.1.0
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.13 IXA00383882 - GEN: Starting acceleration service on CentOS 6.4 takes a long time -

Title	GEN: Starting acceleration service on CentOS 6.4 takes a long time
Reference #	IXA00383882
Description	Starting the acceleration service usually takes <5s, but can take 30+ seconds if using Linux kernel 2.6.32 on CentOS 6.4. This is due to a secondary bus reset (SBR) of the device being performed as part of the initialization of the driver. After the reset, the driver has to restore PCI configuration space, either manually (via <code>adf_restore_pci_state()</code>) or via kernel API (<code>pci_restore_state()</code>). If using Linux kernel 2.6.32 on CentOS 6.4, the driver has to manually perform the restore of the PCI configuration space, which takes approximately 20+ seconds. The driver doesn't yet support legacy kernel versions. If building CentOS on Linux kernel 2.6.32 the above issue arises.
Implication	<code>adf_ctl</code> up can take >30s.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.14 IXA00384139 - CY: The wireless firmware can hang -

Title	CY: The wireless firmware can hang
Reference #	IXA00384139
Description	It may be possible under heavy load conditions for the wireless FW to hang.
Implication	The wireless FW may hang.
Resolution	This issue is resolved in R1.0.1
Affected OS	Linux
Driver/Module	CPM IA - Common



3.2.15 IXA00384236 - GEN: QAT driver build fails on CentOS 6.5 -

Title	GEN: QAT driver build fails on CentOS 6.5
Reference #	IXA00384236
Description	The QAT driver will not build on CentOS 6.5 without copying over the following files from a different kernel (for example, CentOS 6.4): /usr/src/kernels/<kernelver>/include/crypto/md5.h /usr/src/kernels/<kernelver>/include/linux/pci.h /usr/src/kernels/<kernelver>/include/asm-generic/pci.h
Implication	The QAT driver will not build on CentOS 6.5.
Resolution	This is resolved in R2.1.0
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.16 IXA00384310 - GEN: Error in osalIOMMUVirtToPhys function -

Title	GEN: Error in osalIOMMUVirtToPhys function
Reference #	IXA00384310
Description	While looking at the IOMMU support in the User Space side of the Osal Memory Driver: OsalUsrKrnProxy.c The function osalIOMMUVirtToPhys is called in the kernel space driver with an unmap call (DEV_MEM_IOC_IOMMUUNMAP) rather than a virt to phys call (DEV_MEM_IOC_IOMMUVTOP).
Implication	Memory deallocation will fail.
Resolution	This is resolved in R1.0.0
Affected OS	Linux
Driver/Module	OSAL

3.2.17 IXA00384311 - GEN: Dynamic instance allocation issues for 32-bit application on 64-bit OS -

Title	GEN: Dynamic instance allocation issues for 32-bit application on 64-bit OS
Reference #	IXA00384311
Description	The existing solution had an incompatible data structure size for 32 bit user space application running on 64-bit kernel space.
Implication	Dynamic instance would have issues running on 32 bit user space with 64 bit kernel space.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM FW - Crypto

3.2.18 IXA00384312 - DC: Errors not reported if session type is COMBINED and compression is dynamic -

Title	DC: Errors not reported if session type is COMBINED and compression is dynamic
Reference #	IXA00384312
Description	Errors from translation slice are ignored when the session direction is CPA_DC_DIR_COMBINED and huffType is CPA_DC_HT_FULL_DYNAMIC
Implication	If user's application configures the session so that the direction is combined and the compression type is dynamic then the user will not see any potential errors that could occur.



Title	DC: Errors not reported if session type is COMBINED and compression is dynamic
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM FW - Crypto

3.2.19 IXA00384313 - CY: Need Param check in crypto APIs for CpaBoolean variables passed as pointers -

Title	CY: Need Param check in crypto APIs for CpaBoolean variables passed as pointers
Reference #	IXA00384313
Description	All the cpaCy APIs that take a boolean parameter as a pointer need to have this parameter check before being used.
Implication	If the user decides to pass a null pointer to this parameter, the driver will report a segmentation fault.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Crypto

3.2.20 IXA00384314 - GEN: Typo in CONFIG_PCI(E)AER -

Title	GEN: Typo in CONFIG_PCI(E)AER
Reference #	IXA00384314
Description	The linux kernel has the flag CONFIG_PCIEAER set when Advanced Error Reporting is supported. Making a typo on this #define prevents the code within CONFIG_PCIEAER section not to be compiled.
Implication	Advanced Error Reporting feature is not available.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	ADF - Kernel Mode

3.2.21 IXA00384315 - GEN: Error in ring handling when using interrupts in user space -

Title	GEN: Error in ring handling when using interrupts in user space
Reference #	IXA00384315
Description	When using interrupt mode with a user space QA application, the response ring head is not always updated during response processing and so the interrupt condition persists. The root of the issue is that a previous SW optimization coalesces response ring head updates. This optimization should not be applied when the response ring is in interrupt mode.
Implication	The fact that interrupts are re-enabled causes a the same interrupt to fire again multiple times. This leads to significant drop in system performance.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	ADF - User Mode



3.2.22 IXA00384316 - CY: more cleanup code in osal_init is needed -

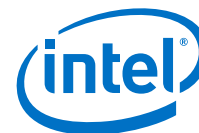
Title	CY: more cleanup code in osal_init is needed
Reference #	IXA00384316
Description	If function calls with osal_init fail, then the driver will not be unregistered and the crypto interface may not be uninitialized.
Implication	This can lead to memory leaks in the kernel space.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Crypto

3.2.23 IXA00384317 - CY: Driver lockup with RC4 cipher when hit ring full -

Title	CY: Driver lockup with RC4 cipher when hit ring full
Reference #	IXA00384317
Description	When doing decryption with the RC4 cipher which has lots of threads submitting decrypt requests to a single instance, eventually one thread hits ring full (CPA_STATUS_RETRY). That thread then resubmits the same request but no response will be received.
Implication	For multi threaded operations, if the ring is already full and a re-submitted request receives a CPA_STATUS_RETRY then this request will not receive a response. The bug is in function LacSymQueue_RequestSend() in file lookaside/access_layer/src/common/crypto/sym/lac_sym_queue.c. Before putting the request on the ring, the function assigns: - pSessionDesc->nonBlockingOpsInProgress = CPA_FALSE; This indicates that a blocking operation is in flight. The function then attempts to write the request to the ring. If the write to the ring is not successful, then the function fails to restore the nonBlockingOpsInProgress flag. Subsequent requests are queued in the session's queue, waiting for a pending operation which does not exist.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Crypto

3.2.24 IXA00384318 - CY: Hit ring full when number of threads << ring size -

Title	CY: Hit ring full when number of threads << ring size
Reference #	IXA00384318
Description	The ring reports full for an invalid reason.
Implication	The driver returns frequent CPA_STATUS_RETRY errors, requests are being resubmitted and performance decreases.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	ADF - User Mode



3.2.25 IXA00384319 - DC: Report overflow from XLT when byte count mismatch detected -

Title	DC: Report overflow from XLT when byte count mismatch detected
Reference #	IXA00384319
Description	During a dynamic compression operation, the translator slice will not report an overflow error if the dynamic output is greater than the static output.
Implication	Compressed data returned to the user will be correct. The user will not be aware that XLT has overflowed if the dynamic output is greater than the static output after the re-submit. This has no effect on the user application.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM FW - Data Compression

3.2.26 IXA00384642 - GEN: Heartbeat failure -

Title	GEN: Heartbeat failure
Reference #	IXA00384642
Description	When testing heartbeat, we observed that with a firmware hang, the firmware could not be restarted by heartbeat.
Implication	Under certain conditions, the firmware cannot be restarted by the heartbeat feature.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - 128B

3.2.27 IXA00384677 - Gen: Unnecessary extra interrupts generated in user mode -

Title	Gen: Unnecessary extra interrupts generated in user mode
Reference #	IXA00384677
Description	(Corresponds to IXA00384933 on QAT1.5) In user space, if configured to use interrupts there are more interrupts generated than necessary. It can be seen in /proc/interrupts that the number of interrupts is greater than the number of responses received.
Implication	Unnecessary interrupt processing wastes CPU cycles.
Resolution	This is resolved in R2.1.1
Affected OS	Linux
Driver/Module	ADF - User Mode

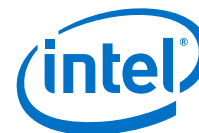


3.2.28 IXA00384678 - GEN: Cannot evenly distribute/affinities interrupts in multi-process environment -

Title	GEN: Cannot evenly distribute/affinities interrupts in multi-process environment
Reference #	IXA00384678
Description	<p>In user space using interrupt mode. Configure to run 1 process per core (32 cores) and give each process access to 1 logical instance on DH895xcc. The device fails to load.</p> <p>e.g [SSL] NumberCyInstances = 1 NumberDcInstances = 0 NumProcesses = 32 LimitDevAccess = 0 # Crypto - User instance #0 CyOName = "SSL0" CyOIsPolled = 0 # List of core affinities CyOCoreAffinity = 0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31 1 adf_ctl up fails as follows: # ./adf_ctl up Processing file: /etc/dh895xcc_qa_dev0.conf /etc/dh895xcc_qa_dev0.conf: 232: Parse Error - skipping line ADF_CONFIG_CTL err: adf_generate_config_params_dh895x: ERROR: Hardware resources unavailable for requested configuration.</p>
Implication	The device fails to load.
Resolution	This is resolved in R2.2.0
Affected OS	Linux
Driver/Module	ADF - User Mode

3.2.29 IXA00384681 - CY: Silent drop of messages -

Title	CY: Silent drop of messages
Reference #	IXA00384681
Description	<p>When Crypto partials are in flight, messages can get queued in the driver so they are processed sequentially, that is, the next request is not put on the ring to the firmware until the response from the previous request has been received.</p> <p>If the response ring has been polled 10000 times and a response is not received, the queued requests are silently dropped.</p> <p>Although unlikely to happen, this behavior has been seen for example when submitting requests in the callback.</p>
Implication	An application could end up waiting indefinitely for a response and not be aware that the request has been dropped.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Crypto



3.2.30 IXA00385003 - GEN: Response ring processing is unnecessarily restricting request submissions -

Title	GEN: Response ring processing is unnecessarily restricting request submissions
Reference #	IXA00385003
Description	Inflight count for ring messages is not updated until after all callbacks handled together have been completed. This can lead to the ring pair reporting full, even though there is space available on the rings. The inflight counter should be decremented as soon as the response message has been picked up in the response ring rather than after a burst of callbacks have been completed.
Implication	A RETRY response can be received when trying to put a message in the ring even though space is available.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	ADF - User Mode

3.2.31 IXA00385148 - CY: Issue with Data Plane API GCM operations when using the acceleration driver -

Title	CY: Issue with Data Plane API GCM operations when using the acceleration driver
Reference #	IXA00385148
Description	According to API documentation, values for hashStartSrcOffsetInBytes and messageLenToHashInBytes are not required for internal purposes for GCM operations. If these values are not set, GCM operations do not work with the Data Plane APIs. The driver is responsible for setting these values and this is not currently being done. This issue does not occur with the traditional GCM operations.
Implication	GCM operations in the Data Plane API fail.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.32 IXA00385374 - DC: Incorrect compressed data produced in case of level 1 or level 2 compression and CPA_OVERFLOW -

Title	DC: Incorrect compressed data produced in case of level 1 or level 2 compression and CPA_OVERFLOW
Reference #	IXA00385374
Description	Some data compressed with deflate level 1 or level 2 may produce an invalid deflate bitstream in case of overflow. Besides the overflow exception (reported as -11) by the API, there is no other error reported to the user to indicate that the bitstream is invalid. As a consequence, when decompressing the data, a soft error will be reported. Note: This issue has only been seen when an overflow condition occurs.
Implication	Data produced with level 1 or level 2 compression in the case of overflow could be corrupt. In these cases, the output from compression cannot be reliably used to create the original input data.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM IA - Data Compression



3.2.33 IXA00385624 - GEN: The driver does not completely enable all error correction and detection (ECC and Parity) in the accelerator -

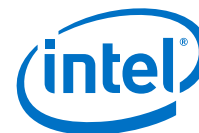
Title	GEN: The driver does not completely enable all error correction and detection (ECC and Parity) in the accelerator
Reference #	IXA00385624
Description	All previously released Intel® QuickAssist Technology drivers do not have some of the ECC error correction and some of the parity detection logic enabled in the accelerator.
Implication	In the logic that does not have ECC error correction enabled, a single bit error will be treated as an uncorrectable error. For the limited memory that has parity detection disabled, a parity error will NOT be treated as uncorrectable. Uncorrectable errors may cause the accelerator to halt.
Resolution	This is resolved in R1.1.0.
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.34 IXA00385777 - GEN: 32-bit apps on 64-bit OS display typo in adf_ctl status -

Title	GEN: 32-bit apps on 64-bit OS display typo in adf_ctl status
Reference #	IXA00385777
Description	The ./adf_ctl status prints out inaccurate information when running a 32-bit user application on a 64-bit kernel. For example, on a board with two dh89xcc and two dh895xcc devices, the following is the output: [root@wgc/pixa00381808 build]# ../../QAT1.6/build/adf_ctl s There is 4 acceleration device(s) in the system: icp_dev0 - type=dh89xcc, inst_id=0, node_id=0, bsf=01:00:0, #accel=2, #engines=8, state=up icp_dev1 - type=xxcc, inst_id=0, node_id=0, bsf=00:00:0, #accel=2, #engines=2, state=up icp_dev2 - type=dh895xcc, inst_id=0, node_id=0, bsf=02:00:0, #accel=6, #engines=12, state=up icp_dev3 - type= , inst_id=0, node_id=0, bsf=00:00:0, #accel=1, #engines=0, state=up
Implication	Invalid data displayed.
Resolution	This is resolved in R2.1.0.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.35 IXA00386072 - DC: Wrong consumed value reported by QAT on compression overflow -

Title	DC: Wrong consumed value reported by QAT on compression overflow
Reference #	IXA00386072
Description	When overflow is encountered during compression a boundary condition can occur which will result in a code representing the last 16 compressed bytes to not be output. The generated block is valid Deflate but that code is missing from the generated stream.
Implication	As the 16 bytes of input has been processed the "bytes consumed" value returned is incremented accordingly. If continuing compression after the overflow event it would appear as if the 16 bytes was skipped. On decompression the 16 bytes would be missing from the produced data.
Resolution	This is resolved with the R1.1 release.
Affected OS	Linux
Driver/Module	CPM FW - Data Compression



3.2.36 IXA00386298 - DC: Mismatch between QAT compressed data and zlib -

Title	DC: Mismatch between QAT compressed data and zlib
Reference #	IXA00386298
Description	Due to an issue on the older version of OSAL, there is a possible mismatch between the data being decompressed by Zlib and the source data compressed by QAT.
Implication	The implication is a reliability issue that can be seen only when stressing the memory management of the driver. In the normal mode of operation, this does not happen. The root cause of the issue is the OSAL module. For some reason, the virtual address being returned is invalid and when doing a virt2phys on it, it is passing an invalid physical address to the firmware. Issues can manifest themselves as a data mismatch or firmware hang. The issue was first observed in the 1.0.5 release.
Resolution	This issue is not seen from 1.1.0 package onwards. The issue is fixed in OSAL module which is now common to DH895xcc and DH89xxcc drivers. This module is different from the OSAL module in the 1.0.x driver releases.
Affected OS	Linux
Driver/Module	CPM FW - Data Compression

3.2.37 IXA00386348 - SRIOV Host user space sign of life test causes crash in 'osalIOMMUMap' -

Title	SRIOV Host user space sign of life test causes crash in 'osalIOMMUMap'
Reference #	IXA00386348
Description	The following error was observed at the end of running the sample code signOfLife user space test on a CentOS host: CpaMux: cpaMuxDeRegisterImpl() called with null handle and the logs show a crash in osalIOMMUMap
Implication	The sample code signOfLife user space test on a host can cause a driver crash.
Resolution	This is fixed in QATmux v1.1.0
Affected OS	Linux
Driver/Module	IA Integration Tests

3.2.38 IXA00386403 - SRIOV Guest user space sample code signOfLife test fails -

Title	SRIOV Guest user space sample code signOfLife test fails
Reference #	IXA00386403
Description	On a VM the following error was observed when sample code signOfLife test in user-space failed: [error] Lac_MemPoolCreate() - : Unable to allocate contiguous chunk of memory
Implication	Sample code signOfLife test may fail
Resolution	It may help to increase kernel parameter vm.min_free_kbytes or vm.max_map_count This is fixed in QATmux v1.1.0
Affected OS	Linux
Driver/Module	CPM IA - Common



3.2.39 IXA00386453 - CY: Incorrect Cy Session Ctx size returned by Dynamic API when hashMode = NESTED -

Title	CY: Incorrect Cy Session Ctx size returned by Dynamic API when hashMode = NESTED
Reference #	IXA00386453
Description	If using cpaCySymSessionCtxGetDynamicSize API the value returned when hashMode= CPA_CY_SYM_HASH_MODE_NESTED is less than the memory size required. If the exact memory size returned is then provided to the session the driver will access memory outside of this address space. This could result in a driver crash or in the driver overwriting data belonging to another application.
Implication	OAT Driver could access memory outside of area provided, with undefined results.
Resolution	This is resolved in R2.2.0
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.40 IXA00386644 - GEN: System crash when driver built without SRIOV support is used on a virtualized system -

Title	GEN: System crash when driver built without SRIOV support is used on a virtualized system
Reference #	IXA00386644
Description	It has been observed on a virtualization enabled system will crash when trying to bring up the driver which is built without SRIOV support.
Implication	The system will become unresponsive and will require to restart the system.
Resolution	Ensure that driver is built with SRIOV support when running on a virtualized system.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.41 IXA00386760 - GEN: Issue while running sample code as a 32-bit application in a 64-bit OS -

Title	GEN: Issue while running sample code as a 32-bit application in a 64-bit OS
Reference #	IXA00386760
Description	Running the user-space sample code with SignOfLife=1 fails for a system configured with 32-bit user space on 64-bit kernel space.
Implication	32-bit user space on 64-bit kernel space package does not work.
Resolution	This is resolved in R2.1.0.
Affected OS	Linux
Driver/Module	CPM IA - Common



3.2.42 IXA00386768 - GEN: MUX package outputs message to stdout -

Title	GEN: MUX package outputs message to stdout
Reference #	IXA00386768
Description	<p>QATmux is designed to work with both QAT1.5 and QAT1.6 drivers and so on user-space process start the icp_sal_userStart API will try to start both of those drivers. However on a platform which is missing one QAT1.x driver, e.g. no QAT1.5 driver loaded and .so file removed as no DH89xxcc device present, warnings will be displayed on stdout.</p> <p>e.g. the following warnings are expected:</p> <pre>> libqat_1_5_mux_s.so Library not loaded/ libqat_1_6_mux_s.so Library not loaded > qat_1_5 driver not registered with qat_mux / qat_1_6 driver not registered with qat_mux</pre> <p>These warnings can be ignored, the user-space process will start with whichever driver is available.</p> <p>The warnings should be removed or moved to stderr.</p> <p>See also IXA00386283</p>
Implication	Applications which depend on parsing stdout may not expect to see these warnings.
Resolution	This is resolved with the R2.1.0 release.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.43 IXA00386914 - DC: Incorrect output from stateful compression in overflow case for application with more than 2 simultaneous threads -

Title	DC: Incorrect output from stateful compression in overflow case for application with more than 2 simultaneous threads
Reference #	IXA00386914
Description	It has been reported that stateful compression operations running over more than 2 threads can generate incorrect deflate block. This issue is met when overflow on the destination buffer occurs and when the input buffer size is greater or equal to 32Kb.
Implication	Invalid compression deflate block is produced.
Resolution	This is resolved in R2.1.0.
Affected OS	Linux
Driver/Module	CPM IA - Data Compression

3.2.44 IXA00387091 - SRIOV Issue in pfvcomms on a guest in a mux installation -

Title	SRIOV Issue in pfvcomms on a guest in a mux installation
Reference #	IXA00387091
Description	When building the mux package for virtualization, two libqat_1_6_mux so files are created: libqat_1_6_mux_s.so and libqat_1_6_mux_vf_s.so. These are functionally identical, however if a user-space process on a guest uses the second of these the system behaviour is undefined. This is because the first object is also loaded on the guest during registration with the qat_mux. With both objects loaded the pfvComms APIs will not work, there may be also be other problems.
Implication	If using the mux on a guest the libqat_1_6_mux_vf_s.so should not be used.



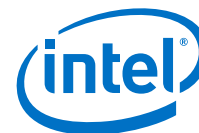
Title	SRIOV Issue in pfvfcomms on a guest in a mux installation
Resolution	When using the mux on a guest don't use: <ul style="list-style-type: none">libqat_1_6_mux_vf_s.solibqat_1_5_mux_vf_s.so Instead use: <ul style="list-style-type: none">libqat_1_6_mux_s.solibqat_1_5_mux_s.so i.e. copy these objects to /lib64 and link in user-space processes. Delete the ones which shouldn't be used from /lib64 and the QA build dir.
Affected OS	Linux
Driver/Module	CPM IA - Common

3.2.45 [IXA00387115 - GEN: Add support for Linux Kernels greater than 3.10 in order to enable debug information in proc file system -](#)

Title	GEN: Add support for Linux Kernels greater than 3.10 in order to enable debug information in proc file system
Reference #	IXA00387115
Description	The following commands were not supported when QAT driver was running on system with a kernel greater than 3.10 <code>cat /proc/icp_dh89xcc_dev0/qat0</code> <code>cat /proc/icp_dh89xcc_dev0/cfg_debug</code> <code>cat /proc/icp_dh895xcc_dev0/et_ring_ctrl/bank_9/ring_0</code> The entries were created but the files in the /proc were empty.
Implication	It is impossible to debug or to understand the driver behavior
Resolution	This is resolved in R2.2.0.
Affected OS	Linux
Driver/Module	ADF - Kernel Mode

3.2.46 [IXA00387190 - SRIOV: User app needing pfvfcomms APIs and qaeMemDrv doesn't build out-of-box -](#)

Title	SRIOV: User app needing pfvfcomms APIs and qaeMemDrv doesn't build out-of-box
Reference #	IXA00387190
Description	A user application compiling in both <code>qae_mem_utils.h</code> and <code>lac_common.h</code> (needed to access pfvfcomms APIs) gets duplicated symbols errors and code doesn't compile.
Implication	qaeMemDrv can't be used out-of-box by application using pfvfcomms
Resolution	In user application instead of using: <code>#include "qae_mem_utils.h"</code> add whichever <code>qae_mem_utils</code> function prototypes are needed directly, e.g.: <code>CpaPhysicalAddr qaeVirtToPhysNUMA(void* pVirtAddr); void* qaeMemAllocNUMA(Cpa32U size, Cpa32U node, Cpa32U alignment); void qaeMemFreeNUMA(void** ptr);</code>
Affected OS	Linux
Driver/Module	CPM IA - Common



3.2.47 IXA00387202 - GEN: Uninstall does not remove all modules -

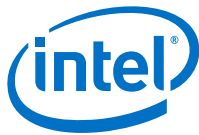
Title	GEN: Uninstall does not remove all modules
Reference #	IXA00387202
Description	When uninstalling the QAT driver using installer.sh option uamux, qat_mux.ko kernel module is not removed. This happens when qaeMemDrv is linked with qat_mux kernel module. This following should not show anything, but shows qat_mux.ko is still loaded. <code>lsmod grep qa</code>
Implication	qat_mux.ko is still installed after calling uninstall.
Resolution	This is resolved in R2.1.0.
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.48 IXA00387238 - GEN: Heartbeat API will not work in mux environment where DH895xcc and DH89xxcc devices installed -

Title	GEN: Heartbeat API will not work in mux environment where DH895xcc and DH89xxcc devices installed
Reference #	IXA00387238
Description	The Heartbeat APIs <code>icp_sal_check_device()</code> and <code>icp_sal_check_all_devices()</code> can't be used to access all device types in mux installation where both DH895xcc and DH89xxcc device types are installed in the system. This is because the APIs are not supported in <code>libqat_mux_s.so</code> , just in the individual <code>libqat_1_5_mux_s.so</code> and <code>libqat_1_6_mux_s.so</code> user space objects. If only one of the latter two objects is installed then the user-space app can use the Heartbeat APIs to check the devices supported by that driver. However if both are installed the API will only route to one of the drivers and so can't check devices supported by the other driver.
Implication	<code>icp_sal_check_device()</code> and <code>icp_sal_check_all_devices()</code> shouldn't be used in mux installation where both DH895xcc and DH89xxcc devices installed.
Resolution	This is resolved with R2.1.0 of the driver.
Affected OS	Linux
Driver/Module	CPM IA – Ctrl Heartbeat

3.2.49 IXA00387260 - GEN: Device enumeration inconsistency between adf_ctl and the cpa_mux -

Title	GEN: Device enumeration inconsistency between adf_ctl and the cpa_mux
Reference #	IXA00387260
Description	This only affects APIs which take an <code>accelId</code> parameter and are used in a mux installation. The <code>adf_ctl</code> utility and the <code>cpa_mux</code> are inconsistent in how they enumerate devices. <code>adf_ctl</code> starts with devices supported by QAT1.5, then QAT1.6. For instance, on a platform with one DH89xxcc and one DH895xcc device: <code>[root@localhost build]# ./adf_ctl s</code> There is 2 acceleration device(s) in the system: <code>icp_dev0 - type=dh89xxcc, inst_id=0, node_id=0, bdf=02:00:0, #accel=2, #engines=8, state=down</code> <code>icp_dev1 - type=dh895xcc, inst_id=0, node_id=1, bdf=82:00:0, #accel=6, #engines=12, state=down</code> . However in APIs which take <code>accelId</code> as a parameter, when routed through the <code>qat_mux</code> the enumeration is QAT1.6 devices first, then QAT1.5 so <code>icp_sal_pollBank(0)</code> will be routed to the first device on QAT1.6 and <code>icp_sal_pollBank(1)</code> will be routed to the first device on QAT1.5. These numbers should be aligned, so the X in <code>icp_devX</code> matches the <code>accelId</code> used to call the APIs.
Implication	The <code>adf_ctl</code> status output can't be used directly as the <code>accelId</code> on the API.
Resolution	This is resolved in R2.1.0.
Affected OS	Linux
Driver/Module	ADF - User Mode



3.2.50 IXA00387365 - GEN: icp_sal_reset_device() resets the first device when no accel-id is passed -

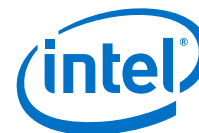
Title	GEN: icp_sal_reset_device() resets the first device when no accel-id is passed
Reference #	IXA00387365
Description	It has been observed on Centos 6.5 with QATMux 2.1.0 package installed on a system with one DH89xxCC and one DH895xCC that the API icp_sal_reset_device() only resets the first device "icp_dev0" when no accel-id is passed to the API.
Implication	Not all the devices will be reset, only the first one
Resolution	This was a test code issue, not a driver issue, in fact 0 was being passed to the API.
Affected OS	Linux
Driver/Module	CPM IA – Ctrl Proc FS

3.2.51 IXA00387500 - GEN: Calling icp_sal_reset_device then running sample code fails and results in a firmware hang -

Title	GEN: Calling icp_sal_reset_device then running sample code fails and results in a firmware hang
Reference #	IXA00387500
Description	It has been observed that when a system is configured with SRIOV enabled and the sample code signOfLife is run on the host, an uncorrectable error happens leading to a firmware hang. This occurs when running the sample code after calling the command ./adf_ctl reset. The command "./adf_ctl reset" does call the icp_sal_reset_device() API. This API is responsible for the failure.
Implication	QAT driver is not responding and needs to be restarted.
Resolution	This is resolved in R2.2.0
Affected OS	Linux
Driver/Module	ADF - Kernel Mode

3.2.52 IXA00387537 - GEN: Performance sample code for user-space does not compile on Ubuntu 12.04 -

Title	GEN: Performance sample code for user-space does not compile on Ubuntu 12.04
Reference #	IXA00387537
Description	It has been observed that with package #18 of QATmux.L.2.1.0 that the sample code is failing to build. The following is output to the console Creating executable cpa_sample_code /QAT/QAT1.6/build/libqat_mux_s.so: undefined reference to `dlopen' /QAT/QAT1.6/build/libqat_mux_s.so: undefined reference to `dlclose' /QAT/QAT1.6/build/libqat_mux_s.so: undefined reference to `dlsym' collect2: ld returned 1 exit status make[1]: *** [cpa_sample_code] Error 1 make[1]: Leaving directory `/QAT/QAT1.6/quickassist/lookaside/access_layer/src/sample_code/performance' make: *** [perf_user] Error 2
Implication	The sample code user-space utility is not available to the customer
Resolution	This is resolved with R2.2.0
Affected OS	Linux
Driver/Module	CPM IA - Sample Code



3.2.53 IXA00387605 - GEN icp_sal_check_device() only works for device 0 -

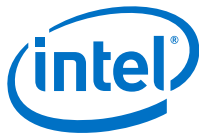
Title	GEN icp_sal_check_device() only works for device 0
Reference #	IXA00387605
Description	The icp_sal_check_device() is the heartbeat query API. It fails if the accelID parameter passed to it is any value other than 0.
Implication	A heartbeat check using the API can only be called on Device 0
Resolution	This has been resolved in R2.2.0.
Affected OS	Linux
Driver/Module	ADF - User Mode

3.2.54 IXA00387642 - GEN: False report of Firmware hang when Wireless firmware used -

Title	GEN: False report of Firmware hang when Wireless firmware used
Reference #	IXA00387642
Description	<p>If Wireless_enabled=1 in the configuration file, then a highly optimized firmware is used which doesn't support stats or heartbeat queries. However the /proc directories are mistakenly provided. So if either of the following are done then it is reported that the device is not responding and needs to be reset.</p> <pre>cat /proc/icp..../qat cat /proc/icp..../heartbeat</pre> <p>In actual fact the device is fine and can pass acceleration requests. Similarly if the heartbeat APIs, i.e. icp_sal_check_device() or icp_sal_check_all_devices() are called they will also return a device fail.</p>
Implication	The device can be falsely reported as not responding even though it is working fine.
Resolution	This is resolved in R2.1.2.
Affected OS	Linux
Driver/Module	CPM FW - Wireless

3.2.55 IXA00387764 - DC: Dynamic Compression may lead to data loss -

Title	DC: Dynamic Compression may lead to data loss
Reference #	IXA00387764
Description	When using dynamic compression to compress data, it is possible to get an error (CPA_DC_BAD_DIST_CODE) during decompression. No notification is available upon compression. The compressed data cannot be decompressed.
Implication	Data compressed with the dynamic compression feature may not decompress to obtain the original data.
Resolution	This is resolved in R2.6
Affected OS	Linux
Driver/Module	CPM FW - Data Compression

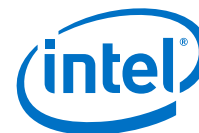


3.2.56 IXA00388141 - DC: Cannot submit a QAT decompression request with a destination buffer length of less than 16B -

Title	DC: Cannot submit a QAT decompression request with a destination buffer length of less than 16B
Reference #	IXA00388141
Description	When trying to perform a decompression operation with a destination buffer size of length less than 16B, the QAT driver returns an error: "Destination buffer size should be greater or equal to 16 bytes"
Implication	Destination buffer that are smaller than 16 bytes will not be accepted by the driver for decompression.
Resolution	This is resolved in R2.3.1
Affected OS	Linux
Driver/Module	CPM IA – Compression

3.2.57 IXA00388203 - GEN: kernel crash on ICP_AUTO_DEVICE_RESET after heartbeat fail -

Title	GEN: kernel crash on ICP_AUTO_DEVICE_RESET after heartbeat fail
Reference #	IXA00388203
Description	<p>If the driver detects a FW hang via a heartbeat query it will correctly reset the device. However if a further heartbeat query is done while the reset is in progress this can cause a kernel crash. The crash refers to OsalMutexLock.</p> <p>This only affects the Coletto driver, i.e. QAT1.6 driver, when built with ICP_AUTO_DEVICE_RESET compiler flag.</p> <p>If the heartbeat query is done every 100ms the crash happens, when done less frequently the crash hasn't been observed.</p> <p>i.e. this caused a crash: watch -n0.1 cat /proc/icp_dh895xcc_dev0/qat but this didn't: watch -n0.2 cat /proc/icp_dh895xcc_dev0/qat</p>
Implication	<p>The auto recovery from a Firmware hang may cause a kernel crash.</p> <p>If this crash happens adf_ctl down results in "Device is in use", so the device can't be brought down and the driver can't be restarted. The platform needs to be rebooted to recover.</p>
Resolution	This is resolved in R2.2.1.
Affected OS	Linux
Driver/Module	OSAL



3.2.58 IXA00388273 - GEN: Fail to create more than 32 user space processes on DH895xCC device -

Title	GEN: Fail to create more than 32 user space processes on DH895xCC device
Reference #	IXA00388273
Description	If NumProcesses in user section of the configuration file is greater than 32, e.g. [SSL] NumberCyInstances = 1 NumberDcInstances = 0 NumProcesses = 64 LimitDevAccess = 1 # Crypto - User space Cy0Name = "UserCY0" Cy0IsPolled = 1 Cy0CoreAffinity = 0 then ./adf_ctl will report the following error and the device will not come up: ADF_CONFIG_CTL err: adf_generate_config_params_dh895x: ERROR: Hardware resources
Implication	Only 32 user space processes can be started.
Resolution	This is resolved in R2.2.1
Affected OS	Linux
Driver/Module	ADF - Kernel Mode

3.2.59 IXA00388687 - GEN: Warning in log in sync mode operation -

Title	GEN: Warning in log in sync mode operation
Reference #	IXA00388687
Description	When calling the QA API using synchronous mode (Callback = NULL) in some cases the following msg is seen in the logs LacSync_DestroySyncCookie() - : Attempting to destroy an incomplete sync cookie This has no impact on functionality. However it does indicate a memory leak of about 20 bytes. This has been seen if running cpa_sample_code RSA tests, but may also occur in other cases.
Implication	None
Resolution	This is resolved in R2.2.2.
Affected OS	Linux
Driver/Module	CPM IA – Crypto Asym



3.2.60 IXA00388702 - GEN: Can't have 64 user processes if PF_bundle_offset !=0 even though SRIOV is disabled -

Title	GEN: Can't have 64 user processes if PF_bundle_offset !=0 even though SRIOV is disabled
Reference #	IXA00388702
Description	In the configuration file PF_bundle_offset is only intended for use when SRIOV_enabled=1. However if it is inadvertently set, instead of being ignored it limits the banks available for user space processes. e.g. with SRIOV_Enabled = 0, PF_bundle_offset=5 User space 1 CY instance, 1 DC instance, NumProcesses = 64 the device fails to come up with following error: ERROR: Hardware resources unavailable for requested configuration.
Implication	Number of instances and/or processes available in user space can be incorrectly limited.
Resolution	This is fixed in R2.2.2.
Affected OS	Linux
Driver/Module	ADF - User Mode

3.2.61 IXA00388728 - SRIOV: PfvfComms potential issue in corner case -

Title	SRIOV: PfvfComms potential issue in corner case
Reference #	IXA00388728
Description	This issue is only seen if a message with a specific pattern is sent on the pfvf comms link If a user message of value 0x1A98 is sent from Pf to Vf using icp_sal_userSendMsgToVf() the Pf access to that Vf will be blocked and no subsequent messages can be sent by the Pf The Vf can however send a message, and once it does the link will be unblocked and the PF or Vf can send messages again. The same can happen in the opposite direction, i.e. If a user message of value 0x1A98 is sent from Vf to Pf using icp_sal_userSendMsgToPf() the Vf will be blocked from sending further messages until the PF sends a message. This is because the value 0x1A98 matches an internal value used by the pfvfcomms collision detection mechanism. Note the fix for this affects backwards compatibility of this link and so of the QAT driver. So as the fix is done in QAT 2.3.0, this version is not compatible with earlier versions, i.e. a VF with version 2.3.0 will not start with a PF running an earlier version.
Implication	User messages sent on pfvfcomms should not use the value 0x1A98 (on QAT releases below 2.3.0)
Resolution	This is resolved in R2.3.0
Affected OS	Linux
Driver/Module	ADF - Kernel Mode



3.2.62 IXA00388945 - CY: Wrong result for TLS1.1 or TLS1.0 when the length of secret is odd -

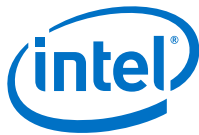
Title	CY: Wrong result for TLS1.1 or TLS1.0 when the length of secret is odd
Reference #	IXA00388945
Description	QAT API cpaCyKeyGenTls() returns wrong results when the length of the secret is odd. This happens for example when using Elliptic Curve DH for key exchange. Conditions to recreate the problem: <ul style="list-style-type: none"> • TLS 1.0 or TLS 1.1 • Secret length is an odd number From the TLS RFC (chapter 5): http://www.ietf.org/rfc/rfc4346 The secret is partitioned into two halves (with the possibility of one shared byte) as described above, S1 taking the first L_S1 bytes, and S2 the last L_S2 bytes. QAT doesn't handle the shared byte correctly, so results are incorrect in this case.
Implication	Wrong result for TLS1.1 or TLS1.0 when the length of secret is odd
Resolution	This is resolved in R2.3.0
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.63 IXA00389436 - GEN: Load Test Application may use incorrect CY instance numbers -

Title	GEN: Load Test Application may use incorrect CY instance numbers
Reference #	IXA00389436
Description	The application when run with certain values for numPke and numCipher can attempt to use unintended CY instance numbers.
Implication	It may cause unequal load distribution or produce an error "Invalid Logical QA Instance" at runtime.
Resolution	This is resolved in R2.5.0
Affected OS	Linux
Driver/Module	CPM IA – Sample Code

3.2.64 IXA00389480 - DC: Sample code fails to build when ICP_DC_ONLY compile flag is enabled -

Title	DC: Sample code fails to build when ICP_DC_ONLY compile flag is enabled
Reference #	IXA00389480
Description	The installer script cannot build the sample code with the ICP_DC_ONLY flag enabled as it tries to link to the crypto APIs which aren't supported in this use case.
Implication	Sample code won't build when ICP_DC_ONLY flag is enabled.
Resolution	This is resolved in R2.5.0.
Affected OS	Linux
Driver/Module	CPM IA – Compression



3.2.65 IXA00389876 - CY: Bug in AES-XTS support for sizes that are not a 16B multiple -

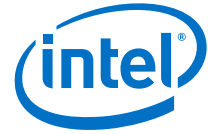
Title	CY: Bug in AES-XTS support for sizes that are not a 16B multiple
Reference #	IXA00389876
Description	A single request with a data size that is not a multiple of 16B for AES-XTS will fail in the IA QuickAssist driver with an invalid param check.
Implication	The user cannot submit AES-XTS Crypto requests with buffers that are not multiples of 16B.
Resolution	This is resolved in R2.5.0.
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.66 IXA00390035 - SRIOV: PfvComms fails after Device Uncorrectable error occurs -

Title	SRIOV: PfvComms fails after Device Uncorrectable error occurs
Reference #	IXA00390035
Description	If an Uncorrectable error occurs on a QAT device the Uncorrectable error is handled by an ISR in the driver which will usually reset the device. However if the QAT driver is built without ICP_AUTO_DEVICE_RESET_ON_ERR the device is not reset. It's up to the user to manually reset the device later by calling <code>adf_ctl reset</code> or the device reset API While the device is in this errored state, it should be possible to transmit messages across <code>pfvcomms</code> . However all messages fail.
Implication	After a device uncorrectable error and before resetting the device the Pfv communication path between Host and Guest is not available.
Resolution	This is resolved in R2.4.0.
Affected OS	Linux
Driver/Module	ADF - Kernel Mode

3.2.67 IXA00390046 - GEN: Calling `adf_ctl reset` and `adf_ctl up` in parallel causes kernel panic -

Title	GEN: Calling <code>adf_ctl reset</code> and <code>adf_ctl up</code> in parallel causes kernel panic
Reference #	IXA00390046
Description	If " <code>adf_ctl icp_dev0 up</code> " is called while a device reset is in progress, i.e. within a few seconds after calling " <code>adf_ctl icp_dev0 reset</code> " then a kernel panic can occur.
Implication	After the kernel panic occurs the target system may need to be rebooted to recover.
Resolution	This is resolved in R2.5.0
Affected OS	Linux
Driver/Module	ADF - Kernel Mode



3.2.68 IXA00390133 - CY: Incorrect hash generated with SHA384 and secret length > 64 bytes -

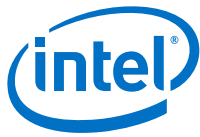
Title	CY: Incorrect hash generated with SHA384 and secret length > 64 bytes
Reference #	IXA00390133
Description	An incorrect hash is generated when using SHA384 with secret length greater than 64 bytes. If the secret is length is <= 64 bytes OR the hash algorithm is different from SHA384 the results are correct.
Implication	Don't use secret length of > 64bytes with SHA384
Resolution	This is resolved in R2.5.0
Affected OS	Linux
Driver/Module	CPM IA – Crypto Sym

3.2.69 IXA00390156 - GEN: Uncorrectable interrupt not handled for some engines. -

Title	GEN: Uncorrectable interrupt not handled for some engines.
Reference #	IXA00390156
Description	If an uncorrectable error occurs on certain engines then it will not be reported unless there is already an uncorrectable reported on other certain engines. This has been identified during code inspection.
Implication	No interrupt will be generated for an uncorrectable error on certain engines unless an uncorrectable error has already occurred in other certain engines.
Resolution	This is resolved in R2.4.0.
Affected OS	Linux
Driver/Module	ADF - Kernel Mode

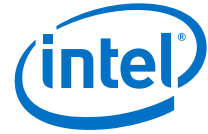
3.2.70 IXA00392515 - GEN: Inflight counter being overwritten for ring pairs in adjacent banks -

Title	GEN: Inflight counter being overwritten for ring pairs in adjacent banks
Reference #	IXA00392515
Description	Max number of inflight requests can be reached without actually filling the ring. The inflight count for each ring pair in bank 0 is at the same address as the corresponding ring-pair in bank 1. Similarly, bank 2 counters overlap with bank 3 counters, etc. This affects both Data Plane and Traditional APIs in user space, not in kernel space on both QAT1.5 and QAT1.6.
Implication	CPA_STATUS_RETRY's will be received on both input rings for both instances even though there room on the ring.
Resolution	This is resolved in R2.6
Affected OS	Linux
Driver/Module	ADF - User Mode



3.2.71 IXA00392595 - GEN: High memory usage upon calling icp_sal_userStart. -

Title	GEN: High memory usage upon calling icp_sal_userStart.
Reference #	IXA00392595
Description	Upon calling icp_sal_userStart, the memory used by the driver is higher than expected.
Implication	Memory usage is high, possibly leading to "out of memory" conditions reported by the operating system.
Resolution	This is fixed in R2.2.0.
Affected OS	Linux
Driver/Module	CPM IA – Sample Code



4.0 Intel® Communications Chipset 8900 to 8920 Series and Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure - Software Issues

Known and resolved issues are described in this section. Unless explicitly stated or noted, each issue relates to the Intel® Communications Chipset 8900 to 8920 Series and the Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure.

Note:

Issue titles follow the pattern:

Identifier - <Component> [Stepping] : Description of issue
where:

<Component> is one of the following:

- CY - Cryptographic
- DC - Compression
- EP - Endpoint
- GEN - General
- SYM DP - Symmetric Cryptography on Data Plane
- SRIOV - Single Root I/O Virtualization
- FIRM - Firmware

[Stepping] is an optional qualifier that identifies if the errata applies to a specific chipset device stepping.



4.1 Known Issues for Intel® Communications Chipset 8900 to 8920 Series and Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

Note: Virtualization and Compression issues do not apply to Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure.

The known issues in the current release are listed below.

Table 13. Summary of Known Issues

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4.1.1 IXA00372157 - SRIOV: Shutdown of guest with inflight operations results in device hang -

Title	SRIOV: Shutdown of guest with inflight operations results in device hang
Reference #	IXA00372157
Description	A non graceful forced shutdown of a guest with inflight QA operations may result in a device hang. For example, issuing the command 'virsh destroy' for the guest.
Implication	Device hang. Device is unavailable for other guests and the host.
Resolution	Don't force shutdown, use a graceful shutdown, e.g. 'virsh shutdown' or shutdown from within the guest.
Affected OS	Linux
Driver/Module	CPM IA - Common

4.1.2 IXA00385637 - DC: Zero-length compression requests are not supported when performing stateless data compression using multiple compress operations. -

Title	DC: Zero-length compression requests are not supported when performing stateless data compression using multiple compress operations.
Reference #	IXA00385637
Description	Zero-length compression requests are not supported when performing stateless data compression using multiple compress operations.
Implication	This feature is not available if the user performs zero-length compression requests.
Resolution	When performing stateless data compression using multiple compress operations, ensure that no requests with a zero length buffer size are submitted to the acceleration driver.
Affected OS	Linux
Driver/Module	CPM IA - Data Compression



4.1.3 IXA00386756 - GEN: Driver -12 error occurs when configuring for PF/VF concurrency on some platforms -

Title	GEN: Driver -12 error occurs when configuring for PF/VF concurrency on some platforms
Reference #	IXA00386756
Description	When starting the driver on some platforms with CentOS6.4, with a build and configuration that supports SR-IOV and with service instances allocated to the PF, -12 error occurs.
Implication	Running sample code fails and generates un-correctable error messages.
Resolution	Driver -12 error occurs when calling a kernel function which attaches the virtual function to IOMMU domain fails to find the page directory from the systems page table. This issue was observed on Stargo platform running CentOS 6.4. One alternative is to add iommu=pt to the kernel command line in the GRUB.
Affected OS	Linux
Driver/Module	CPM IA - Common

4.1.4 IXA00392717 - GEN: The driver fails to submit messages to the firmware causing no responses to be delivered and can cause shutdown issues on some application servers -

Title	GEN: The driver fails to submit messages to the firmware causing no responses to be delivered and can cause shutdown issues on some application servers
Reference #	IXA00392717
Description	The driver fails to submit messages to the firmware causing no responses to be delivered and can cause shutdown issues on some application servers. It can appear that the worker process is shutting down and the application server will not exit as it thinks this process is waiting on a response from the firmware that it will not get as no requests were actually sent to the firmware. This issue occurs when 2 or more processes are simultaneously trying to setup instances in the same bank.
Implication	If the previous value is overwritten by the latter one, then previous setting will be lost, which means the ring previously enabled will be disabled.
Resolution	Add a lock in quickassist/adf/transport/src/adf_HWarbiter.c around the WRITE_CSR_ARB_RINGSRVAREN calls to make sure that the CSR written is successfully returned and to prevent two processes writing at the same time. Restarting the process can allow the process to send and receive messages successfully provided that a second process isn't also trying to simultaneously setup an instance on the same bank
Affected OS	Linux
Driver/Module	ADF - Kernel Mode



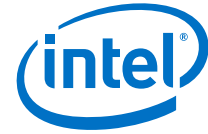
4.2 Resolved Issues for Intel® Communications Chipset 8900 to 8920 Series and Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

This section contains issues resolved since the following package versions:

- Intel® Communications Chipset 8900 to 8920 Series Software version 2.2.0.
- Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

Table 14. Summary of Resolved Issues

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4.2.1 IXA00168573 - CY: Algorithm chaining for AES-GCM can return an incorrect digest when using the Traditional API -

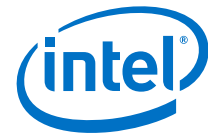
Title	CY: Algorithm chaining for AES-GCM can return an incorrect digest when using the Traditional API
Reference #	IXA00168573
Description	The problem occurs intermittently in a multi-threaded environment and does not affect the cipher text created.
Implication	Incorrect digest can be returned to the user.
Resolution	Addressed in the R1.1.0 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.2 IXA00168788 - CY: Application crash when a user space application fails to initialize asymmetric crypto on IRQ mode only -

Title	CY: Application crash when a user space application fails to initialize asymmetric crypto on IRQ mode only
Reference #	IXA00168788
Description	When user space app fails to initialize PKE running in IRQ mode, it is possible that the application reports a segmentation fault. This issue is reproduceable when allocating and freeing dynamic instances again and again. The initialization will be done at each allocation. It can also be reproduced calling start/stop process APIs in user space again and again.
Implication	The driver will report a segmentation fault.
Resolution	Addressed in the R1.2 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.3 IXA00168886 - DC: Decompression reports -10 soft error after processing stored block of size >= 32KB -

Title	DC: Decompression reports -10 soft error after processing stored block of size >= 32KB
Reference #	IXA00168886
Description	Stateful decompression of >= 32K of specific compressed data can result in a -10 error status being returned to the application for a very specific set of compressed data.
Implication	If a user application receives the -10 error, it should split the data into packets of size < 32K and resubmit the data.
Resolution	Addressed in the R1.3 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.4 IXA00368704 - GEN: icp_sal_userStart hangs when there is no memory in SNB-EN slot -

Title	GEN: icp_sal_userStart hangs when there is no memory in SNB-EN slot
Reference #	IXA00368704
Description	When using the Shumway board with the default configuration, where SNB-EP is the host processor, but with only the SNB-EP banks populated with memory modules, the driver is not be able to bring up the acceleration device connected to the SNB-EN processor node. In kernel space, this results in an error logged in the system log. In user space, the icp_sal_userStart call hangs. This is due to an issue in the kernel that is tracked by this bugzilla entry: https://bugzilla.kernel.org/show_bug.cgi?id=42967
Implication	In kernel space, the instances set up on the second device are unavailable. In user space, the user is not able to execute the icp_sal_userStart function; consequently no instances are available.
Resolution	If a user wants to allocate instances on a particular CPU node, then it is required that this node will be populated with memory since the driver will call kcalloc_node (size, node). If no memory plugged into the memory controller for this node, then a crash will occur.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.5 IXA00369518 - DC B0 only: Only marginal increase in compression ratio at certain levels when stateful used and potential fatal error. -

Title	DC B0 only: Only marginal increase in compression ratio at certain levels when stateful used and potential fatal error.
Reference #	IXA00369518
Description	Due to current workarounds compression ratio during stateful compression at certain levels is affected. Recommended level is 32K L2 for best ratio gain. A fatal error may happen during stateful compression for level 2, 3, 5, 6, 8 or 9.
Implication	The compression ratio gain from using stateful compression will not be realised at the following levels: 32K History Window: L5,L6,L8,L9 8K History Window: L2,L3,L5,L6,L8,L9 The fatal error will return the error -13 in the compression callback.
Resolution	Resolved with C0 silicon.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.6 IXA00370156 - DC B0 Only - Decompression may hang if dynamic src data is incomplete. -

Title	DC B0 Only - Decompression may hang if dynamic src data is incomplete.
Reference #	IXA00370156
Description	The Hardware accelerator may hang during stateless decompression if the src data is incomplete and ends in the middle of a dynamic blocks trees.
Implication	The accelerator will hang and will be unresponsive.
Resolution	Resolved in C0 silicon.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.7 IXA00370174 - DC B0 Only - Decompression can hang if overflow occurs in the middle of a non-empty stored block > 8 Bytes -

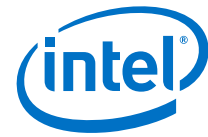
Title	DC B0 Only - Decompression can hang if overflow occurs in the middle of a non-empty stored block > 8 Bytes
Reference #	IXA00370174
Description	There is a problem in the handling of overflow when it occurs in the middle of a non-empty stored block. Affects stateless and stateful decompression. This issue only affects B0 silicon.
Implication	The Compression slice can hang if an overflow occurs in the middle of a stored block that is greater than 8 bytes.
Resolution	A device reset is required when a hang is encountered. Resolved in C0, this issue only affects B0 silicon.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.8 IXA00371167 - DC B0 Only: Overflow may not be reported when incomplete data sent to the slice for decompression. -

Title	DC B0 Only: Overflow may not be reported when incomplete data sent to the slice for decompression.
Reference #	IXA00371167
Description	If overflow occurs during stateless decompression and the last byte is a data byte from a non-empty stored block then overflow will not be reported but the output from the Hardware Accelerator will be incomplete.
Implication	The output from the Hardware Accelerator is incomplete due to a possible overflow.
Resolution	There is currently no workaround for this issue in B0. The issue has been resolved in C0.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.9 IXA00371315 - DC B0 Only - Static output can be corrupted, Dynamic can hang on very rare occasions. -

Title	DC B0 Only - Static output can be corrupted, Dynamic can hang on very rare occasions.
Reference #	IXA00371315
Description	On very rare occasions, a hang can occur during stateless and stateful dynamic compression. The output from stateless and stateful static compression can also be corrupted.
Implication	A hang occurs and compression output can be corrupted.
Resolution	There is currently no workaround for this issue. This issue is resolved with chipset C0 silicon.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.10 IXA00371601 - DC B0 Only : Slice hangs during decompression of fixed/dynamic blocks without empty stored blocks padding to a byte -

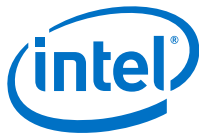
Title	DC B0 Only : Slice hangs during decompression of fixed/dynamic blocks without empty stored blocks padding to a byte
Reference #	IXA00371601
Description	The driver incorrectly handles fixed/dynamic blocks without an empty stored block in between padding each block out to a byte boundary.
Implication	The driver can hang if it encounters this type of input. Affects both stateless and stateful decompression.
Resolution	No known workaround. This issue is resolved with chipset C0 silicon.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.11 IXA00371624 - SRIOV: Device hang on adf_ctl up when guest defines a service not enabled in host services -

Title	SRIOV: Device hang on adf_ctl up when guest defines a service not enabled in host services
Reference #	IXA00371624
Description	If the host only enables service "cy0" and guest attempts to define and use "cy1" then device hangs affecting both host and guest.
Implication	Device hang.
Resolution	All services to be used by guests should be enabled in the host configuration file.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.12 IXA00372583 - DC : Decompression can falsely detect soft error with certain input. -

Title	DC : Decompression can falsely detect soft error with certain input.
Reference #	IXA00372583
Description	During decompression certain dynamic trees can cause the decompression slice to falsely detect soft error. This situation occurs when, during the compression of a data set, the compressor generates a dynamic Huffman tree with the following characteristics: i) Exactly 256 symbols are used. ii) All the symbols have the same, or nearly the same frequency of occurrence. iii) All of the symbols are encoded to 8-bit codes. In this particular situation, during decompression, the decompressor does not process the tree correctly and returns an error that usually indicates a data error.
Implication	Soft error is encountered and decompression of stream cannot be completed.
Resolution	See the Stateful Compression - Dealing with Error Code CPA_DC_BAD_LITLEN_CODES (-7) section in the Intel® Communications Chipset 89xx Series Software Programmer's Guide for more information
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.13 IXA00372698 - DC B0 Only - Decompression of stored blocks may cause CRC error -

Title	DC B0 Only - Decompression of stored blocks may cause CRC error
Reference #	IXA00372698
Description	During decompression of stored blocks an incorrect CRC/Adler may be returned.
Implication	During decompression of stored blocks an incorrect CRC/Adler may be returned.
Resolution	No workaround for this issue although CRC can be calculated in software.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.14 IXA00373407 - DC: Decompression service will continue to increment the consumed value for all data provided in the request after the final deflate block -

Title	DC: Decompression service will continue to increment the consumed value for all data provided in the request after the final deflate block
Reference #	IXA00373407
Description	<p>The decompression service processes data up to and including a deflate block with a BFINAL bit set. If there is further data in the source buffer after the end of the BFINAL deflate block it will not be processed.</p> <p>The behavior of the consumed byte counter (returned to the user via consumed value in CpaDcRqResults structure) cannot be predicted when the compression engine is fed with additional data after the end of deflate stream. Consecutive packets must be submitted as a Start of Packet.</p> <p>The acceleration slice does not understand Zlib or Gzip format therefore it is recommended for the user not to submit the header nor the footer of the deflate stream to the compression slice.</p>
Implication	If the source buffer provided to the decompression service contains data (e.g. a footer) after the BFINAL deflate block then the consumed value in CpaDcRqResults structure returned to the user is not correct. Subsequent packet sent to the slice will then fail to inflate.
Resolution	Addressed in the R1.5 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.15 IXA00373795 - GEN: Segfault on exit of the performance sample user-space application with optimized wireless firmware -

Title	GEN: Segfault on exit of the performance sample user-space application with optimized wireless firmware
Reference #	IXA00373795
Description	<p>When running the optimized wireless firmware, there is a segmentation fault on exit when operating in the following environment:</p> <ul style="list-style-type: none">- Wireless Firmware- 1024 byte packets or bigger- 4 instances (2 slices on 2 CPMs)- Traditional API
Implication	All tests run successfully, but there is a segmentation fault on exit, resulting in a memory leak.
Resolution	Addressed in the R1.0.1 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.16 IXA00373970 - CY: wireless instance will hang when kill the process or use ctrl+c to exit the test -

Title	CY: wireless instance will hang when kill the process or use ctrl+c to exit the test
Reference #	IXA00373970
Description	While using the wireless firmware it is possible to cause a hang if the process is killed before it is finished. The hang is caused by the driver orphan thread handling not covering the wireless case correctly.
Implication	After the hang the device needs to be reset before it can process requests again.
Resolution	This is resolved in R1.7.2
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.17 IXA00378322 - CY: Performance drop for alg chain cipher then hash when append flag set -

Title	CY: Performance drop for alg chain cipher then hash when append flag set
Reference #	IXA00378322
Description	There is performance drop for Cipher-Hash operation when the digest is generated and inserted in to the destination buffer. The performance drop is observed comparing to Cipher-Hash operations when digest is generated and added to the separate buffer.
Implication	The algorithm remains functional. However, performance throughput levels for encrypt are reduced by 30-40%. Decrypt is unaffected.
Resolution	Addressed in the R1.0.1 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.18 IXA00378522 - GEN : Cannot have different values of LimitDevAccess across device config files -

Title	GEN : Cannot have different values of LimitDevAccess across device config files
Reference #	IXA00378522
Description	Problems arise when LimitDevAccess is enabled in one config file, but disabled in another. The driver is not currently able to handle this mixed configuration.
Implication	Driver may not find the correct entries in the configuration file if this setting is different for each device in the system.
Resolution	Addressed in the R1.2.0 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.19 IXA00378662 - DC: The upper word of the Adler checksum can be calculated incorrectly on very rare occasions -

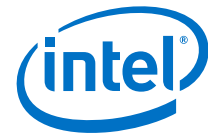
Title	DC: The upper word of the Adler checksum can be calculated incorrectly on very rare occasions
Reference #	IXA00378662
Description	During decompression, because Adler32 is computed on four bytes at a time, the Compression slice incorrectly calculates the upper word of the Adler checksum. This situation occurs under the following conditions: i) The upper word of the current Adler calculation is in the vicinity of 0xFFFF0. ii) The lower word of the current Adler calculation is in the vicinity of 0x7FFC. iii) The Adler32 computation for the next four bytes causes the upper word to exceed 0x2ffe0 before modulo arithmetic is performed. The modulo arithmetic is not done correctly in this case, causing an error in the checksum.
Implication	An erroneous checksum error is encountered after decompression is completed. There is no ability for the decompression solution to examine a checksum and determine that the problem occurred.
Resolution	Addressed in the R1.0.1 Software Package. A software workaround now takes care of this under the API.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.20 IXA00378701 - GEN : When slub_debug is defined in kernel space, seg fault when service is shutdown -

Title	GEN : When slub_debug is defined in kernel space, seg fault when service is shutdown
Reference #	IXA00378701
Description	When slub_debug is enabled at boot using the kernel parameters, the driver's memory allocation function can return non aligned memory thus crashing the driver during ring creation.
Implication	Cannot use slub-debug as a kernel parameter.
Resolution	Do not enable slub_debug at boot. Enable the relevant slub_debug parameters in the /sys/kernel/slub/* files once the system is up-and-running.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.21 IXA00378934 - CY: Crypto RSA segmentation fault while running performance tests in user space -

Title	CY: Crypto RSA segmentation fault while running performance tests in user space
Reference #	IXA00378934
Description	when running multiple threads performing primeTests on the same logical instance the application may run into the following error [error] cpaCyPrimeTest() - : Cannot get mem pool entry Segmentation fault (core dumped)
Implication	Performance test fails.
Resolution	Addressed in the R1.0.1 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.22 IXA00378952 - GEN : Error over-riding a single logical Instance NumConcurrentRequest Value -

Title	GEN : Error over-riding a single logical Instance NumConcurrentRequest Value
Reference #	IXA00378952
Description	<p>The V2 configuration file provides a general setting for the NumConcurrentRequests for each service: #Default values for number of concurrent requests*/ CyNumConcurrentSymRequests = 512 CyNumConcurrentAsymRequests = 64 DcNumConcurrentRequests = 512</p> <p>The user should be able to override a single logical instance NumConcurrentRequest value using: CyXNumConcurrentAsymRequests = 512 where X= the instance number.</p> <p>However, the <code>adf_ctl</code> command or <code>icp_sa_userStartMultiProcess</code> function will report an error that the other instances are missing a corresponding <code>CyXNumConcurrentAsymRequests</code> parameter, but they should just use the default defined in the general section.</p>
Implication	The user cannot overwrite settings for a single instance.
Resolution	<p>If a user wants to overwrite a specific settings for an instance the entry for this needs to be put in a appropriate space in the instance definition. Configuration is processed from up - down and if the parser does not know about the specific configuration for a given instance, it will produce the default value. For example, when the user wants to overwrite the <code>CyXNumConcurrentAsymRequests</code> value for instance #1, it should be configured as above.</p> <pre># Crypto - User instance #1 Cy1Name = "SSL1" Cy1NumConcurrentAsymRequests = 128 Cy1IsPolled = 1 Cy1AcceleratorNumber = 1 # List of core affinities Cy1CoreAffinity = 1</pre> <p>In the below configuration, the specific value will not be taken into account and the default value will be generated.</p> <pre># Crypto - User instance #1 Cy1Name = "SSL1" Cy1IsPolled = 1 Cy1AcceleratorNumber = 1 # List of core affinities Cy1CoreAffinity = 1 Cy1NumConcurrentAsymRequests = 128</pre>
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.23 IXA00379409 - DC: cpaDcDecompressData reqs fail intermittantly on resubmit after CPA_STATUS_RETRY -

Title	DC: cpaDcDecompressData reqs fail intermittantly on resubmit after CPA_STATUS_RETRY
Reference #	IXA00379409
Description	<p>If the user application resubmits both <code>cpaDcCompressData</code> or <code>cpaDcDecompressData</code> calls and if the driver returns status <code>CPA_STATUS_RETRY</code>, then:</p> <ul style="list-style-type: none"> - The <code>cpaDcCompressData</code> call works fine on resubmits. - The <code>cpaDcDecompressData</code> call fails, not on every resubmit but just on some of them. It doesn't fail on the call itself but on the status returned within the results structure of the callback (the call is asynchronous). The error maybe any of the failure codes (-2, -13 etc).
Implication	The user application will see error codes (-2, -13 etc) and the data will not be decompressed.



Title	DC: cpaDcDecompressData reqs fail intermittantly on resubmit after CPA_STATUS_RETRY
Resolution	Addressed in the R1.1 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.24 IXA00379630 - CY : NRBG cannot be used on 2nd crypto accelerator engine -

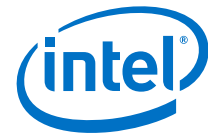
Title	CY : NRBG cannot be used on 2nd crypto accelerator engine
Reference #	IXA00379630
Description	The driver currently does not prevent the user from attempting to use NRBG functions on the second accelerator engine. There should be an error message to that effect, however, the driver behaviour in this situation is unpredictable.
Implication	Application may experience segmentation faults if it attempts to run NRBG on second accelerator engine.
Resolution	Only use Accelerators Engine number 0 on each accelerator. (or 0 and 2 when using V2 config file)
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.25 IXA00379858 - GEN : Heartbeat feature and error detection resets can cause GbE interfaces to go down -

Title	GEN : Heartbeat feature and error detection resets can cause GbE interfaces to go down
Reference #	IXA00379858
Description	When the acceleration driver detects either the firmware being unresponsive or other errors (detected through PCIe Advanced Error Reporting), it saves the PCIe state of the PCH and then performs a secondary bus reset of the Intel® Communications Chipset 89xx Series device. Once the reset is complete, the driver restores the PCIe state of the PCH. At this point, the GbE interfaces have been reset and there were no saving/restoring of its PCIe state and there is no notification of this reset to the igb driver (if it was loaded and running). The GbE interfaces are no longer operational. Any network connections previously opened are now unresponsive.
Implication	The GbE interfaces will hang and will be unresponsive.
Resolution	The "heartbeat" feature and GbE Watchdog are described in the Getting Started Guide and the Programmer's Guide.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.26 IXA00380162 - CY: Kernel Opps Running qat_service shutdown before gige_watchdog_service stop -

Title	CY: Kernel Opps Running qat_service shutdown before gige_watchdog_service stop
Reference #	IXA00380162
Description	If the qat_service service is shutdown before the gige_watchdog_service the kernel will report an opps.
Implication	The kernel will report a kernel oops.



Title	CY: Kernel Opps Running qat_service shutdown before gige_watchdog_service stop
Resolution	Addressed in the R1.1 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.27 IXA00380177 - DC: Decompressing files greater than 4 GB can result in an unreported error -

Title	DC: Decompressing files greater than 4 GB can result in an unreported error
Reference #	IXA00380177
Description	Decompressing files greater than 4 GB can result in an unreported error.
Implication	The compression job fails.
Resolution	Addressed in the R1.2 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.28 IXA00380411 - CY: Deadlock for Partial Packets in user space -

Title	CY: Deadlock for Partial Packets in user space
Reference #	IXA00380411
Description	When creating multiple sessions all feeding partial packet requests to one instance, a deadlock can occur.
Implication	The driver will lockup.
Resolution	Addressed in the R1.2 Software Package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.29 IXA00380578 - SRIOV: iommu_domain_alloc() crashes if IOMMU not enabled in the BIOS -

Title	SRIOV: iommu_domain_alloc() crashes if IOMMU not enabled in the BIOS
Reference #	IXA00380578
Description	<p>It has been noticed that if in the BIOS, the fields: "VT-d" and "SRIOV Support" are disabled, the iommu_domain_alloc() function fails.</p> <p>The console reports:</p> <pre>Jan 15 08:45:44 localhost kernel: [148.892566] RIP [<ffffffff813b9029>] iommu_domain_alloc+0x3f/0x56 Jan 15 08:45:44 localhost kernel: [148.892680] RSP <ffff8802226d3e78> Jan 15 08:45:44 localhost kernel: [148.892750] CR2: 0000000000000000 Jan 15 08:45:44 localhost kernel: [148.892830] ---[end trace d612ff498c7f024b]--- Jan 15 08:45:45 localhost abrtcd: Directory 'oops-2013-01-15-08:45:45-720-0' creation detected Jan 15 08:45:45 localhost abrt-dump-oops: Reported 1 kernel oopses to Abrt</pre>
Implication	iommu_domain_alloc() function fails and prevents the icp_qa_al from being insmoded correctly.



Title	SRI OV: iommu_domain_alloc() crashes if IOMMU not enabled in the BIOS
Resolution	Ensure that IOMMU is supported and enabled on the system.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.30 IXA00381020 - GEN: IA Driver - Osal - Error in osalIOMMUVirtToPhys function -

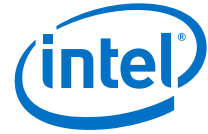
Title	GEN: IA Driver - Osal - Error in osalIOMMUVirtToPhys function
Reference #	IXA00381020
Description	While looking at the IOMMU support in the User Space side of the Osal Memory Driver: OsalUsrKrnProxy.c The function osalIOMMUVirtToPhys is called in the kernel space driver with an unmap call (DEV_MEM_IOC_IOMMUUNMAP) rather than a virt to phys call (DEV_MEM_IOC_IOMMUVTOP).
Implication	Memory deallocation will fail.
Resolution	Addressed in the R1.3 Software Package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.31 IXA00381037 - DC: cpaDcRemoveSession return code check error. -

Title	DC: cpaDcRemoveSession return code check error.
Reference #	IXA00381037
Description	Issue 1: In the cpaDcRemoveSession() API, the spinlock was destroyed if the status to be return to the user was CPA_STATUS_RETRY. The spinlock should only be destroyed when the status is CPA_STATUS_SUCCESS. Issue 2: Before removing the session, it is necessary to verify the status of the rings to make sure these are empty. To do this, the API icp_adf_queueDataToSend() must be used. Originally, the verification was done using icp_adf_isRingEmpty() which was wrong.
Implication	Issue 1: If a retry occurred then this could lead to timing problems. Issue 2: Ring may not be empty even so the driver thinks it is.
Resolution	Addressed in the R1.2 Software Package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.32 IXA00381038 - DC: Potential memory leak in DC (Trad API) -

Title	DC: Potential memory leak in DC (Trad API)
Reference #	IXA00381038
Description	If a call to dcCreateRequest fails in dcCompDecompData, memory associated with the cookie is not freed.
Implication	This can lead to memory leaks when requests fail to be created.



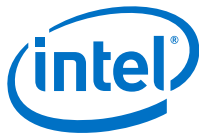
Title	DC: Potential memory leak in DC (Trad API)
Resolution	Addressed in the R1.2 Software Package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.33 IXA00381173 - DC: Stateless Cumulative Checksum reports incorrect bytes consumed. -

Title	DC: Stateless Cumulative Checksum reports incorrect bytes consumed.
Reference #	IXA00381173
Description	<p>The issue is present on stateless decompression and shows the consumed byte count being incorrect.</p> <p>The issue was seen with the following session settings:</p> <ul style="list-style-type: none"> - Level 6 - Dynamic type - Deflate - AutoSelectBest enabled, - Adler32 checksum selected <p>The test case used compressed a 512 block of data split into 2 scatter-gather lists. The compression operation worked fine but when trying to decompress the data, the expected consumed was different of what was produced during the compression operation. Switching the test to non-cumulative mode shows correct bytes consumed.</p>
Implication	The decompressed data is invalid.
Resolution	Addressed in the R1.2 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.34 IXA00381337 - SRIOV : Pass-through of Intel® QuickAssist Technology PF and PCH GigE ports to a VM result in the GigE ports being non-responsive -

Title	SRIOV : Pass-through of Intel® QuickAssist Technology PF and PCH GigE ports to a VM result in the GigE ports being non-responsive
Reference #	IXA00381337
Description	<p>Pass-through of Intel® QuickAssist Technology Physical Function (PF) and the PCH device GbE ports to a virtual machine result in GbE ports being nonresponsive after Intel® QuickAssist Technology device initialization. Intel® QuickAssist Technology Virtual Function (VF) pass-through with GbE port passthrough is not affected.</p>
Implication	GigE ports are non-responsive.
Resolution	After Intel® QuickAssist Technology device initialization, removing the igb module and re-inserting it allows both devices to work as normal.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.35 IXA00381487 - GEN: Dynamic instance allocation fails for 32-bit app on 64-bit OS -

Title	GEN: Dynamic instance allocation fails for 32-bit app on 64-bit OS
Reference #	IXA00381487
Description	The existing solution had an incompatible data structure size for 32 bit user space application running on 64-bit kernel space.
Implication	Dynamic instance would have issues running on 32 bit user space with 64 bit kernel space.
Resolution	Addressed in the R1.3 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.36 IXA00381488 - DC: Errors not reported if session type is COMBINED and compression is dynamic -

Title	DC: Errors not reported if session type is COMBINED and compression is dynamic
Reference #	IXA00381488
Description	Errors from translation slice are ignored when the session direction is CPA_DC_DIR_COMBINED and huffType is CPA_DC_HT_FULL_DYNAMIC
Implication	If user's application configures the session so that the direction is combined and the compression type is dynamic then the user will not see any potential errors that could occur.
Resolution	Addressed in the R1.3 Software Package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.37 IXA00381962 - CY: Need Param check in crypto APIs for CpaBoolean variables passed as pointers -

Title	CY: Need Param check in crypto APIs for CpaBoolean variables passed as pointers
Reference #	IXA00381962
Description	All the cpaCy APIs that take a boolean parameter as a pointer need to have this parameter check before being used.
Implication	If the user decides to pass a null pointer to this parameter, the driver will report a segmentation fault.
Resolution	Parameter check added to verify that the pointer address being passed is not NULL.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.38 IXA00381968 - GEN: Typo in CONFIG_PCI(E)AER -

Title	GEN: Typo in CONFIG_PCI(E)AER
Reference #	IXA00381968
Description	The linux kernel has the flag CONFIG_PCIEAER set when Advanced Error Reporting is supported. Making a typo on this #define prevents the code within CONFIG_PCIEAER section not to be compiled.
Implication	Advanced Error Reporting feature is not available.



Title	GEN: Typo in CONFIG_PCI (E)AER
Resolution	Addressed in the R1.3 Software Package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.39 IXA00382154 - GEN: Error in ring handling when using interrupts in user space -

Title	GEN: Error in ring handling when using interrupts in user space
Reference #	IXA00382154
Description	When using interrupt mode with a user space QA application, the response ring head is not always updated during response processing and so the interrupt condition persists. The root of the issue is that a previous SW optimization coalesces response ring head updates. This optimization should not be applied when the response ring is in interrupt mode.
Implication	The fact that interrupts are re-enabled causes a the same interrupt to fire again multiple times. This leads to significant drop in system performance.
Resolution	In the API <code>adf_ring_ioc_create_handle()</code> : The <code>ring_handle.min_resps_per_head_write</code> is now set 0 in interrupt mode. Thi sprevents the interrupt from firing again. The <code>ring_handle.min_resps_per_head_write = ring_data->minRespsPerHeadWrite</code> in polling mode
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.40 IXA00382531 - CY: more cleanup code in osal_init is needed -

Title	CY: more cleanup code in osal_init is needed
Reference #	IXA00382531
Description	If function calls with <code>osal_init</code> fail, then the driver will not be unregistered and the crypto interface may not be uninitialized.
Implication	This can lead to memory leaks in the kernel space.
Resolution	The driver now calls the API <code>unregister_mem_device_driver()</code> if the <code>osalCryptoInterfaceInit()</code> fails. If the API <code>osalIOMMUInit()</code> fails, the driver now calls both <code>unregister_mem_device_driver()</code> and <code>osalCryptoInterfaceExit()</code> APIs.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.41 IXA00382601 - DC: Stateful compression operation can return false fatal error. -

Title	DC: Stateful compression operation can return false fatal error.
Reference #	IXA00382601
Description	Under heavy load when simultaneously running compression and cryptography operations, certain stateful compression operations on very particular input can return a false fatal error (error code -13).
Implication	The compression job for the session will fail and will need to be resubmitted.



Title	DC: Stateful compression operation can return false fatal error.
Resolution	The firmware has been modified to remove the Fatal error reporting. Addressed in the R1.3.1 software package.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.42 IXA00382623 - DRAM Read in counter mode does not consume desc read signal correctly -

Title	DRAM Read in counter mode does not consume desc read signal correctly
Reference #	IXA00382623
Description	<p>During a DRAM read operation of the scatter gather list, the decision to read the next flat buffer is made at the wrong time.</p> <p>This issue is visible when using dynamic compression and under a heavy load of traffic. Timing / IO latency all play a role when it comes to the manifestation of this issue.</p> <p>The problem shows when the compression firmware does not read the entire SGL.</p> <p>Dynamic compression or cases where the compression length in the request parameters is less than the length of the SRC flat buffer (inside the SGL) will be the main culprits.</p> <p>During DRAM read counter mode when not all of the flat buffers are populated with data we want to read we set the num of buffers in local memory to zero and the current buffer size to the dram read counter.</p> <p>The problem occurs because the decision to read the next flat buffer is made *before* the decision to modify these values. For correct operation it needs to happen after.</p>
Implication	<p>Consequences:</p> <ul style="list-style-type: none">- In the static compression scenario, we may end up with compressed data but not the ones that we expect- In the case of dynamic compression scenario, we may get slice error or history corruption.
Resolution	Firmware has been modified in 1.4 release so the decision to read the next flat buffer is made after the number of flat buffer is set to 0 in local memory.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.43 IXA00382936 - CY: When starting an application that uses a large number (>16) of processes, a timeout error may occur -

Title	CY: When starting an application that uses a large number (>16) of processes, a timeout error may occur
Reference #	IXA00382936
Description	The issue was observed using the openssl speed application patched with libcrypto* (OpenSSL*) Sample Patch for Intel(R) QuickAssist Technology. Libcrypto's openssl speed test uses multiple processes (instead of multiple threads) to measure performance. Each process has access to one crypto instance. When running a test with 16 or 32 processes, the test can fail from time to time reporting: [error] SalCtrl_AdfServicesStartedCheck() - : Sal Ctrl failed to start in given time[error] do_userStart() - : Failed to start servicescan't use that engine
Implication	Time-out errors may occur when starting a user space application when a large number (>16) of processes is used.
Resolution	This is resolved in QAT1.5 R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.44 IXA00382998 - CY: Driver lockup with RC4 cipher when hit ring full -

Title	CY: Driver lockup with RC4 cipher when hit ring full
Reference #	IXA00382998
Description	When doing decryption with the RC4 cipher which has lots of threads submitting decrypt requests to a single instance, eventually one thread hits ring full (CPA_STATUS_RETRY). That thread then resubmits the same request but no response will be received.
Implication	For multi threaded operations, if the ring is already full and a re-submitted request receives a CPA_STATUS_RETRY then this request will not receive a response. The bug is in function LacSymQueue_RequestSend() in file lookaside/access_layer/src/common/crypto/sym/lac_sym_queue.c. Before putting the request on the ring, the function assigns: - pSessionDesc->nonBlockingOpsInProgress = CPA_FALSE; This indicates that a blocking operation is in flight. The function then attempts to write the request to the ring. If the write to the ring is not successful, then the function fails to restore the nonBlockingOpsInProgress flag. Subsequent requests are queued in the session's queue, waiting for a pending operation which does not exist.
Resolution	A check has been added in lac_sym_queue.c so that if the icp_adf_transPutMsg fails then the nonBlockingOpsInProgress is reset to CPA_TRUE to prevent the driver from waiting for a request to be process that has not been sent down to the firmware.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.45 IXA00382999 - CY: Hit ring full when number of threads << ring size -

Title	CY: Hit ring full when number of threads << ring size
Reference #	IXA00382999
Description	The ring reports full for an invalid reason.
Implication	The driver returns frequent CPA_STATUS_RETRY errors, requests are being resubmitted and performance decreases.
Resolution	The number of inflight messages is decremented just before the callback is invoked rather than updating the number of inflight messages after all the callback have been called.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

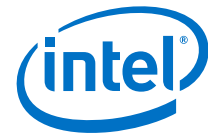


4.2.46 IXA00383390 - DC: High rates of simultaneous crypto and (de)compression operations may cause in correct compression output and write an incorrect amount of data into the output buffer -

Title	DC: High rates of simultaneous crypto and (de)compression operations may cause in correct compression output and write an incorrect amount of data into the output buffer
Reference #	IXA00383390
Description	<p>An incorrect compression output may be generated during some compression / decompression operations. This soft error indicates that an incorrect amount of data was written to the (de)compression output buffer in memory. It may not write enough data to memory or it may write too much data to memory.</p> <p>The issue is most likely to occur when running both symmetric cryptographic operations and compression/decompression operations at the same time with high request/traffic rates. When the issue occurs, the cryptographic operations are unaffected.</p> <p>The issue is highly unlikely to occur when running only compression/decompression operations (i.e. without concurrent cryptographic operations).</p> <p>The issue will not occur when running cryptographic operations alone.</p> <p>In the scenario where not enough data is written to the output buffer, data is missing and hence the compressed/decompressed data is incomplete and hence invalid.</p>
Implication	<p>If too little data is written the compressed/decompressed data is incomplete and hence invalid.</p> <p>If too much data is written the compressed/decompressed data is valid but additional data is present in the output buffer.</p> <p>If the issue occurs, only Intel(r) QuickAssist accelerator compression/decompression operations are affected.</p>
Resolution	Resubmit the failed Intel(r) QuickAssist accelerator compression/decompression request. This issue will be resolved in a future release of the acceleration driver.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.47 IXA00383454 - CY: Performance Sample Code digestAppend setting is not optimal -

Title	CY: Performance Sample Code digestAppend setting is not optimal
Reference #	IXA00383454
Description	<p>The performance sample code for the symmetric and symmetric data plan code is setting the digestAppend flag to true. This does not yeild the best performance results.</p> <p>In general, the difference is small. However, for 2048 bytes buffers and greater the digestAppend=true follows an unoptimized data path and therefore, the impact is more significant.</p> <p>Files affected: cpa_sample_code_sym_perf.c cpa_sample_code_sum_perf_dp.c</p>
Implication	Symmetric AlgChain performance does not maximize the silicon potential.
Resolution	<p>The cpa_sample_code_sym_perf.c and cpa_sample_code_sum_perf_dp.c files contain the following functions: setupAlgChainTest and setupAlgChainDpTest.</p> <p>These two functions call setupSymmetricTest and setupSymmetricDpTest.</p> <p>The last parameter is the digestAppend flag, this needs to be set to CPA_FALSE.</p> <p>Note: Changing this may result in some alg-chain combinations having invalid parameters.</p>
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.48 IXA00383572 - DC: Report overflow from XLT when byte count mismatch detected -

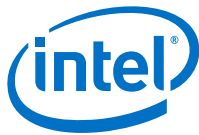
Title	DC: Report overflow from XLT when byte count mismatch detected
Reference #	IXA00383572
Description	During a dynamic compression operation, the translator slice will not report an overflow error if the dynamic output is greater than the static output.
Implication	Compressed data returned to the user will be correct. The user will not be aware that XLT has overflowed if the dynamic output is greater than the static output after the re-submit. This has no effect on the user application.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.49 IXA00384087 - GEN: icp_adf_check_device() API fails to detect when firmware hang. -

Title	GEN: icp_adf_check_device() API fails to detect when firmware hang.
Reference #	IXA00384087
Description	Under certain circumstances, an ME hang due to the read() function called from the icp_adf_check_device() API may go undetected. The function checks for the return value however, it is also required to verify the content of the file.
Implication	if the read function does not fail, it may be able to read /proc/icp_dh89xcc_dev0/qat0 that could be zero length and therefore it would not catch a firmware hang issue.
Resolution	To resolve this issue, we now read the content of the file /proc/icp_dh89xcc_dev0/qat0 to make sure that the content is valid.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.50 IXA00384581 - GEN: The “NumberConcurrent” options in the configuration file will be overwritten to be half of the requested value. -

Title	GEN: The “NumberConcurrent” options in the configuration file will be overwritten to be half of the requested value.
Reference #	IXA00384581
Description	The configuration file holds the number of concurrent requests for Sym, Asym and DC. The Number of Concurrent request is user configurable, but this user value is divided by 2.
Implication	Mismatch between the number of concurrent requests defined by the user in the configuration file and the number of concurrent requests used by the driver.
Resolution	This issue is resolved in the R1.5.0.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.51 IXA00384651 - CY: When ICP_WITHOUT_THREAD is defined, enabling poll mode will cause a core dump -

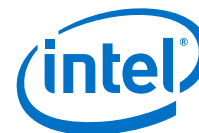
Title	CY: When ICP_WITHOUT_THREAD is defined, enabling poll mode will cause a core dump
Reference #	IXA00384651
Description	If defining ICP_WITHOUT_THREAD and setting the instance poll mode to be 0, then a QAT Driver core dump occurs.
Implication	The QAT Driver will core dump.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.52 IXA00384930 - CY: Issue with data plane GCM operations when using the acceleration driver -

Title	CY: Issue with data plane GCM operations when using the acceleration driver
Reference #	IXA00384930
Description	According to API documentation, values for hashStartSrcOffsetInBytes and messageLenToHashInBytes are not required and are intended for internal purposes for GCM operations. If these values are not set, GCM operations do not work with the data plane APIs. The driver is responsible for setting these values and this is not currently being done. This issue does not occur with the traditional GCM operations.
Implication	Crypto operations fail.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.53 IXA00384933 - GEN: Unnecessary extra interrupts generated in user mode -

Title	GEN: Unnecessary extra interrupts generated in user mode
Reference #	IXA00384933
Description	In user space, if configured to use interrupts, more interrupts are generated than are necessary. In /proc/interrupts, the number of interrupts shown is greater than the number of responses received. (Corresponds to IXA00384677 on QAT1.6)
Implication	Unnecessary interrupt processing wastes CPU cycles.
Resolution	Addressed in the R1.5 Software Package
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.54 IXA00384934 - CY: Silent drop of messages -

Title	CY: Silent drop of messages
Reference #	IXA00384934
Description	When Crypto partials are in flight, messages can get queued in the driver so they are processed sequentially, that is, the next request is not put on the ring to the firmware until the response from the previous request has been received. If the response ring has been polled 10,000 times and the response is not received, the queued requests are silently dropped. (Corresponds to IXA00384681 on QAT1.6)
Implication	An application could remain waiting indefinitely for a response and not be aware that the request has been dropped.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.55 IXA00385456 - GEN: Response ring processing is unnecessarily restricting request submissions -

Title	GEN: Response ring processing is unnecessarily restricting request submissions
Reference #	IXA00385456
Description	The inflight count for ring messages is not updated until after all callbacks handled together have been completed. This can lead to the ring pair reporting full, even though there is space available on the rings. The inflight counter should be decremented as soon as the response msg has been picked up in the response ring rather than after a burst of callbacks have been completed.
Implication	A RETRY response can be received when trying to put a message in the ring even though space is available.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.56 IXA00385555 - GEN: The driver does not completely enable all error correction and detection (ECC and Parity) in the accelerator -

Title	GEN: The driver does not completely enable all error correction and detection (ECC and Parity) in the accelerator
Reference #	IXA00385555
Description	All previously released Intel® QuickAssist Technology drivers do not have some of the ECC error correction and some of the parity detection logic enabled in the accelerator.
Implication	In the logic that does not have ECC error correction enabled, a single bit error will be treated as an uncorrectable error. For the limited memory that has parity detection disabled, a parity error will NOT be treated as uncorrectable. Uncorrectable errors may cause the accelerator to halt.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.57 IXA00385634 - DC: Static decompression can falsely detect soft error with certain input. -

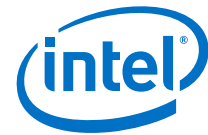
Title	DC: Static decompression can falsely detect soft error with certain input.
Reference #	IXA00385634
Description	It was noticed that the fix for IXA00372583 was not enabled if the session type was set to CPA_DC_HT_STATIC. The fix for this IXA was verifying if the session was set to Dynamic. This was wrong as a the fix for IXA00372583 needs to be applied in all types of sessions (dynamic /static).
Implication	As a consequence it could have happened that the IXA00372583 workaround would not be applied. The user would have seen a (-7) error code reporting a soft error.
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.58 IXA00385765 - GEN: Heartbeat test fails - platform does not recover and requires a reset -

Title	GEN: Heartbeat test fails - platform does not recover and requires a reset
Reference #	IXA00385765
Description	Under a heavy CPU load, it has been observed that when the driver is compiled with ICP_HEARTBEAT set, the Acceleration Engines may not restart when the firmware hangs. We've observed that the Acceleration Engines are stopped (as they should be) but won't be restarted.
Implication	As a consequence, the DH89xxCC device will halt as the firmware will not be reloaded
Resolution	This issue is resolved in R1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.59 IXA00385873 - GEN: free_page usage issues -

Title	GEN: free_page usage issues
Reference #	IXA00385873
Description	OSAL API userMemFreePage() uses free_page() while userMemFreeAllPagePid() and userMemFreeAllPagePid() use __free_page. __free_page() and free_page() are defined as follow: #define __free_page(page) __free_pages((page), 0) #define free_page(addr) free_pages((addr),0) There is also some inconsistency in the parameter being passed to the free_page() calls.
Implication	No known effect to date.
Resolution	This is resolved with the R1.5 release.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.60 IXA00386021 - GEN: Higher than expected CPU cycles used in some low-traffic cases -

Title	GEN: Higher than expected CPU cycles used in some low-traffic cases
Reference #	IXA00386021
Description	This applies to CY / DC acceleration in user-space using polled rings. In response message handling, the CSR write coalescing logic results in the ring head CSR being written more frequently than necessary. This occurs in some low-traffic cases and results in an increased CPU cycle count for those cases. In high traffic cases, many responses are processed by the same poll and the ring head CSR writes are coalesced. In the case where only a small number of responses are processed by a poll, the head CSR is written in each poll, as the CSR write coalescing doesn't kick in.
Implication	More CPU cycles are used.
Resolution	This is resolved with the R1.5 release.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.61 IXA00386067 - SRIOV Issue in running sample code sign of life twice in Guest and Host parallel -

Title	SRIOV Issue in running sample code sign of life twice in Guest and Host parallel
Reference #	IXA00386067
Description	On the second run of sample code on Host and Guest in parallel the following error was observed: [error] LacPke_VerifyMmpLib() - : Error in LAC initialisation. Compiled firmware version (0x972DED54) does not match loaded firmware version (0x00000000)
Implication	A second run of sample_code may fail after the first run has passed.
Resolution	This is fixed in QAT1.5 v1.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.62 IXA00386090 - GEN: QAT R1.3.7 driver cause Linux kernel crash -

Title	GEN: QAT R1.3.7 driver cause Linux kernel crash
Reference #	IXA00386090
Description	After powering on/off the system and run performance test, it is possible to see a Linux kernel crash. If the response to a administration message sent from the QAT driver (using QatCtrl_SendAdminMsg()) takes longer than 300 Jiffies to respond then the semaphore associated with the message is deleted. The response arriving after 300 Jiffies will try to modify the semaphore and cause a kernel crash. Here is QAT call flow, 1.icp_adf_check_device->PROC file system/proc/icp_dh89xccc_dev/???qat0, then QatCtrl_Debug->QatCtrl_FWCountGet->QatCtrl_SendAdminMsg->QatCtrl_AdminMsgSendSync2. QatCtrl_AdminMsgSendSync2 put msg in RING, then call LacSync_WaitForCallback to wait for response. If after 300 jiffies, No response, then it will remove the pSyncCallbackCookie->sid3. The call back function QatCtrl_AdminSyncCb() will POST pSyncCallbackCookie->sid
Implication	Linux kernel will crash and will require a reboot
Resolution	This is resolved with the R1.5 release.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.63 IXA00386143 - GEN: Add support for Linux Kernels greater than 3.10 in order to enable debug information in proc file system -

Title	GEN: Add support for Linux Kernels greater than 3.10 in order to enable debug information in proc file system
Reference #	IXA00386143
Description	The following commands were not supported when QAT driver was running on system with a kernel greater than 3.10 cat /proc/icp_dh89xcc_dev0/qat0 cat /proc/icp_dh89xcc_dev0/cfg_debug cat /proc/icp_dh895xcc_dev0/et_ring_ctrl/bank_9/ring_0 The entries were created but the files in the /proc were empty.
Implication	It is impossible to debug or to understand the driver behavior
Resolution	This is resolved in R1.6.0.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.64 IXA00386517 - GEN: Issue in SRIOV Physical passthrough for 2 devices to single VM -

Title	GEN: Issue in SRIOV Physical passthrough for 2 devices to single VM
Reference #	IXA00386517
Description	When two physical function are assigned to a single VM then the sample code fails to run in kernel space.
Implication	The firmware hangs and the following message is displayed.cat /proc/icp_dh89xcc_dev1/qat0ERROR: Qat is not responding. Please restart the device
Resolution	The root cause for this issue is that Qemu does not pass the interrupt request from guest to host. Upgrade Qemu to 1.2.0 to resolve this issue.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.65 IXA00386714 - CY: digestIsAppended option is not fully supported for Hash-Only operations -

Title	CY: digestIsAppended option is not fully supported for Hash-Only operations
Reference #	IXA00386714
Description	Digest Verify is not currently supported for appended digest in Hash-Only operations (i.e. within the CpaCySymSessionSetupData structure, if symOperation=CPA_CY_SYM_OP_HASH then setting both verifyDigest=TRUE AND digestIsAppended=TRUE is not supported).
Implication	Incorrect digest verify result.
Resolution	When DigestVerify is required do not append the digest, pass it in in a separate buffer.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.66 IXA00387310 - DC: Error with stateful compression with CPA_DC_DIR_COMBINED -

Title	DC: Error with stateful compression with CPA_DC_DIR_COMBINED
Reference #	IXA00387310
Description	When the session direction is CPA_DC_DIR_COMBINED and the session is STATEFUL, the first decompression operation after at least one compression operation may not succeed.
Implication	Errors may be generated at the start of a session if mixing compression and decompression.
Resolution	This is resolved in R1.7.0.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.67 IXA00387481 - GEN Large value for CyXNumConcurrentXXXRequests causes system crash if not enough memory -

Title	GEN Large value for CyXNumConcurrentXXXRequests causes system crash if not enough memory
Reference #	IXA00387481
Description	On a CRB with 4G memory setting the following in the configuration file crashes the CRB: Cy0NumConcurrentSymRequests = 65336Cy0NumConcurrentAsymRequests = 65336The driver comes up ok in a system with 16G memory.The crash occurs while parsing the configuration file. Linux runs out of memory and starts closing services, rendering the board unusable.If the driver is installed with the installer then rebooting the board does not resolve the issue as the file is parsed again on reboot.
Implication	The system is unusable if there's not enough memory on board to satisfy memory requirements driven by NumConcurrentRequests configuration.
Resolution	Recovery can be achieved by rebooting in recovery mode and either reducing NumConcurrentRequest values in the configuration files or installing more memory on the CRB.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.68 IXA00387832 - DC: Dynamic Compression may lead to data loss -

Title	DC: Dynamic Compression may lead to data loss
Reference #	IXA00387832
Description	When using dynamic compression to compress data, it is possible to get an error (CPA_DC_BAD_DIST_CODE) during decompression. No notification is available upon compression. The compressed data cannot be decompressed.
Implication	Data compressed with the dynamic compression feature may not decompress to obtain the original data.
Resolution	This is resolved in R1.11
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.69 IXA00388387 - SRIOV: ./adf_ctl up fails to bring up the DH89xxCC device in a Guest with QATmux environment -

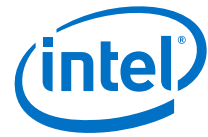
Title	SRIOV: ./adf_ctl up fails to bring up the DH89xxCC device in a Guest with QATmux environment
Reference #	IXA00388387
Description	With both DH89xxCC and DH895xCC devices in a Guest and the QATmux pkg installed the DH89xxcc device fails to come up, with following error: ./adf_ctl icp_dev1 u Processing file: /etc/dh89xxccvf_qa_dev0.conf ADF_CONFIG_CTL err: adf_read_config_file: ERROR: cy(n) is incompatible with dh895xcc device: use 'cy' in /etc/dh89xxccvf_qa_dev0.conf
Implication	In a QATmux environment on a Guest, DH89xxCC devices cannot be used.
Resolution	This is resolved in R2.2.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.70 IXA00388394 - CY: Incorrect Cy Session Ctx size returned by Dynamic API when hashMode = NESTED -

Title	CY: Incorrect Cy Session Ctx size returned by Dynamic API when hashMode = NESTED
Reference #	IXA00388394
Description	If using cpaCySymSessionCtxGetDynamicSize API the value returned when hashMode=CPA_CY_SYM_HASH_MODE_NESTED is less than the memory size required. If the exact memory size returned is then provided to the session the driver will access memory outside of this address space. This could result in a driver crash or in the driver overwriting data belonging to another application.
Implication	QAT Driver could access memory outside of area provided, with undefined results.
Resolution	This is resolved in R1.7.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.71 IXA00388840 - CY: cpaCySymRemoveSession fails in DP API if other active Session sharing ring -

Title	CY: cpaCySymRemoveSession fails in DP API if other active Session sharing ring
Reference #	IXA00388840
Description	If multiple sessions are sharing the same Crypto DP instance, then a call to cpaCySymRemoveSession() will fail if there are messages inflight from another session.
Implication	cpaCySymRemoveSession() may fail
Resolution	This is resolved in R2.3.1
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver



4.2.72 IXA00388846 - GEN: Warning in log in sync mode operation -

Title	GEN: Warning in log in sync mode operation
Reference #	IXA00388846
Description	When calling the QA API using synchronous mode (Callback = NULL) in some cases the following msg is seen in the logs LacSync_DestroySyncCookie() - : Attempting to destroy an incomplete sync cookie This has no impact on functionality. However it does indicate a memory leak of about 20 bytes. This has been seen if running cpa_sample_code RSA tests, but may also occur in other cases.
Implication	None
Resolution	This is resolved in R1.7.2.
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.73 IXA00389842 - CY: CPA_CY_SYM_HASH_AES_GMAC algorithm capability is not added -

Title	CY: CPA_CY_SYM_HASH_AES_GMAC algorithm capability is not added
Reference #	IXA00389842
Description	For a customer using strict capability checking using the API cpaCySymQueryCapabilities they will not be able to perform a AES128-GCM HMAC-AES-GMAC operation
Implication	For a customer using strict capability checking using the API cpaCySymQueryCapabilities they will not be able to perform a AES128-GCM HMAC-AES-GMAC operation
Resolution	This is resolved in R2.5.0
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

4.2.74 IXA00392516 - GEN: Inflight counter being overwritten for ring pairs in adjacent banks -

Title	GEN: Inflight counter being overwritten for ring pairs in adjacent banks
Reference #	IXA00392516
Description	Max number of inflight requests can be reached without actually filling the ring. The inflight count for each ring pair in bank 0 is at the same address as the corresponding ring-pair in bank 1. Similarly, bank 2 counters overlap with bank 3 counters, etc. This affects both Data Plane and Traditional APIs in user space, not in kernel space on both QAT1.5 and QAT1.6.
Implication	CPA_STATUS_RETRY's will be received on both input rings for both instances even though there is room on the ring.
Resolution	This is resolved in R1.11
Affected OS	Linux
Driver/Module	Feature - Acceleration Driver

§ §



5.0 Frequently Asked Questions

The following codes that prefix each title identify which platform each FAQ applies to:

- A - Intel® Communications Chipset 8900 to 8920 Series
- B - Intel® Communications Chipset 8925 to 8955 Series
- C - Intel® Atom™ Processor C2000 Product Family for Communications Infrastructure

5.1 [A, B] I am seeing PCIe Bus Errors when executing the sample code (cpa_sample_code).

These errors could be caused by one of the following:

- incorrect PCIe De-emphasis setting.
Use -3.5dB for trace lengths < 11" and -6dB for trace lengths > 11". The Root Complex that the EndPoint is connected to needs to request the -3.5 de-emphasis when training in Gen2.
- Max Payload Size mismatch between the Root Port and each EndPoint.

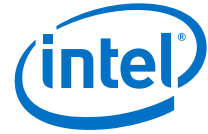
One way to test this is to transmit traffic and see if this works. If this does, then perform loopback test. If this fails, then one of the above is the likely source.

5.2 [A] I am using Intel® Communications Chipset 8900 to 8920 Series (PCH) SKU2, but the acceleration service does not start correctly. How do I resolve this?

Verify that your configuration file does not declare an index for `AcceleratorNumber` or `ExecutionEngine` that is greater than that which your device supports. If you are running the sample code, copy `dh89xxcc_qa_dev0_single_accel.conf` from `quickassist/config` to `/etc/dh89xxcc_qa_dev0.conf`, restart the acceleration service, and try again.

5.3 [A, B] I have an application called XYZ with the intent to use two cryptography instances from each of two chipset (PCH) devices in the system (a total of four instances). What would the configuration files look like?

In this case, the `NumberCyInstances` parameter should be set to 2 in the configuration file for each PCH device.



5.4 [A, B] Should the Cy<n>Name parameter use unique values for <n> in each configuration file?

The Cy<n>Name parameter can be used in different configuration files without issue. In addition, the same Cy<n>Name name can be used in different domains within the same configuration file. The same rules apply to the Dc<n>Name parameter.

5.5 [A, B] Since the SSL data and the KERNEL sections in the configuration files for two Intel® Communications Chipset 8925 to 8955 Series (PCH) devices are identical, it is unclear how an application is able to use instances from more than one device. How does the application know which device each instance maps to?

The application can use the `cpaCyInstanceGetInfo2()` function to query which physical device an instance handle belongs to. For any application domain defined in the configuration files ([KERNEL], [SSL] and so on), a call to `cpaCyGetNumInstances()` returns the number of instances defined for that domain across all configuration files. A subsequent call to `cpaCyGetInstances()` can be used to obtain the instance handles. The `cpaCyInstanceGetInfo2()` function can then be used with an instance handle to identify which device a given instance maps to.

5.6 [A, B] Given the configuration below, what do the `cpaCyGetNumInstances()` and `cpaCyGetInstances()` functions return for each application and kernel domain?

Given this configuration:

- Application ABC: defines two crypto instances on dev0 only
- Application DEF: defines two crypto instances on dev1 only
- Application XYZ: defines four crypto instances (two on dev0, two on dev1)
- KERNEL: defines eight crypto instances (four on dev0, four on dev1)

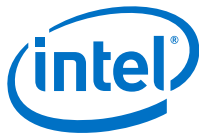
The `cpaCyGetNumInstances()` function returns the following:

- Application ABC: 2
- Application DEF: 2
- Application XYZ: 4
- KERNEL application domain: 8

The `cpaCyGetInstances()` function returns the following:

- Application ABC: two handles on dev0
- Application DEF: two handles on dev1
- Application XYZ: four handles (two on dev0 and two on dev1 in the order given)
- KERNEL application domain: 8 handles (four on dev0, four on dev1 in the order given)

Note: The order in the last two permutations is important.



5.7 [A, B] How can an application use instances from more than one Intel® Communications Chipset 8925 to 8955 Series (PCH) device when the [SSL] and [KERNEL] sections in both configuration files provided in the software package are identical?

An application must call `cpaCyInstanceGetInfo2()` on each handle returned from `cpaCyGetHandles()` and sort them by device. The `cpaCyInstanceGetInfo2()` function allows the user to query which physical device an instance handle belongs to. To expand somewhat, for any application domain defined in the configuration files ([KERNEL], [SSL] and so on), a call to `cpaCyGetNumInstances()` returns the number of instances defined for that domain across all configuration files, a subsequent call to `cpaCyGetInstances()` would obtain these instance handles.

5.8 [A, B] Driver compiles correctly, but acceleration service fails to start. How do I fix this?

A typical reason why the acceleration service does not start is that the `intel_iommu=off` kernel boot option was not specified, as required and documented in the *Getting Started Guide*.

The following errors are seen in this scenario:

```
[error] QatCtrl_InitMsgSendSync() - : Callback timed out
[error] QatCtrl_SendInitMsg() - : Failed to send Init msg 0 to AE 0
[error] SalCtrl_QatStart() - : Sending SET_AE_INFO msg Failed

[error] SalCtrl_QatEventStart() - : Failed to start all qat instances
icp_qa_al err: adf_subsystemStart: Failed to start subservice QAT
icp_qa_al err: adf_do_init: adf_subsystemInit error, stopping and shutting down
```

5.9 [A, C] The firmware does not load. How can I fix this?

If the firmware does not load, verify that `udev` is available and running, and verify that the kernel was built with `CONFIG_FW_LOADER=y`.

5.10 [A, B, C] When I try to start the driver, I see errors (including kernel messages) that appear to be related to memory allocation. What can I do to avoid this?

When many instances are declared in the configuration file, it is possible to see these errors. The errors can typically be avoided by using the recommendations in the “Reducing Asymmetric Service Memory Usage” section of the *Intel® QuickAssist Technology Performance Optimization Guide*, by reducing the `NumConcurrentSymRequests` parameters in the configuration file, or by reducing the number of instances declared in the configuration file (see the “Acceleration Driver Configuration File” chapter in the chipset Programmer’s Guide).

Another approach is to modify Linux* such that the value in `/proc/sys/vm/max_map_count` is increased (for example, to double the value). That value can be increased by modifying `/etc/sysctl.conf` to include the following line:

```
vm.max_map_count = <large_number_here>
```

Then reboot, and run `cat /proc/sys/vm/max_map_count` to verify that the value has been increased.



5.11 [A, B] I'm seeing errors related to Uncorrectable Push/Pull Misc Errors

If you are attempting to access acceleration services on the host system when SR-IOV Host Acceleration software is installed, you may see errors like the following:

```
icp_qa_al err: adf_dh895xcc_adf_isr)handleUncoInterrupt: Uncorrectable Push/
Pull Misc Error
memory status: No errors occurred - Transaction Id 0x0 - Error type reserved
Bus Operation Type Push - Id 0x80000
Reset needed for device: icp_dev0
```

This error would normally indicate a problem with hardware, but it may be addressed with a simple configuration file update. Ensure the following parameters are included in the configuration file in the [GENERAL] section:

- `SRIOV_Enabled = 1`
- `PF_bundle_offset = 5`

After making these updates, restart the acceleration software.

5.12 When trying to start the `qat_service`, it fails, and I see the following error message: "`icp_qa_al: module verification failed: signature and/or required key missing - tainting kernel`". What is the issue?

There are at least two possible scenarios that can lead to this case:

1. The BIOS/UEFI is preventing the module from loading. In this case, look for a BIOS/UEFI option to allow the module to load (e.g., disable Secure Boot).
2. On newer kernels, the upstreamed Intel QuickAssist Technology kernel modules conflict with those from the separate installation package. The newer `qat_service` scripts will `rmmod` these automatically when the service is started, but if an older `qat_service` script is used, or if `adf_ctl` is used, some additional logic is required to `rmmod` the conflicting upstreamed modules or to prevent them from loading.

5.13 When trying to start the Intel® QuickAssist Technology driver, I see errors similar to one or more of the following:

- "`QatCtrl_SendSyncMsg() - : AE response received to admin cmd 1, Fail status: 1`"
- "`SalCtrl_QatStart_dh895x() - : Sending TRNG_ENABLE msg Failed`"
- "`QAT: Could not find a device on node X`"

On systems that support PCIe* ECRC (PCIe transaction layer end-to-end CRC checking), such as Broadwell-based platforms, the root cause may be that ECRC is enabled in BIOS for the PCIe root ports. A proper fix will be for the BIOS to avoid enabling ECRC when devices are present that do not support ECRC or to disable ECRC by default in BIOS.