



Release Notes - Linux*

Intel® QuickAssist Technology Hardware Version 2.0

March 2024

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3 Revision History

1 Description of Release

This document contains information on the accompanying Intel® QuickAssist Technology (Intel® QAT) Hardware Version 2.0 Driver for Linux*.

For instructions on loading and running the release software, refer to the Getting Started Guide listed in the [Related Documentation](#) section.

Refer to the [Revision History](#) to check the changes of this document.

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

1.1 Features

- Sym/Asym Crypto.
- TLS1.3 elliptical curves Montgomery encryption (curve 25519 and curve 448).
- Data Compression with CnV for Deflate and LZ4/LZ4s algorithms and CnVnR for Deflate and LZ4s.
- Telemetry.
- Power Management.
- SM3/SM4.
- Scalable IOV (sIOV).
- Asynchronous E2E support for compression.
- Extended RAS (uncorrectable and fatal error support).
- LZ4 E2E CRC32.
- Thread Specific USDM support.

1.2 Limitations

- Symmetric Crypto Sample applications do not run out of box without configuration file update. Refer to the Getting Started Guide for additional information.
- Stateful decompression is not supported.
- Key Protection Technology (KPT) is not currently supported.
- Auto-select best (ASB) is not supported with rolling *XXHash32*.
- Dynamic Power Management (DPM) is not currently supported.
- Firmware or Hardware Anti-Rollback (ARB) mechanisms are not natively supported. Customers must support their own implementation of firmware or software anti-rollback mechanisms. Customers that do not implement ARB solutions accept all security risks of doing so.
- When using Shared Virtual Memory (SVM) and Address Translation (AT) performance can be affected by number of page faults that occur during processing.

1.3 Supported Operating Systems and Platforms

The software in this release has been validated with the following configurations.

OS	Kernel Version	Platform
RedHat 9.2	5.14.0-284.11.1.el9_2.x86_64	Archer City E4->E5

1.3.1 Version Numbering Scheme

The version numbering scheme is *name.os.major.minor.maintenance-build*, where:

- *name* is "QAT20".
- *os* is the Operating System: "L" for Linux*.
- *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.

1.3.2 Package Version

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

Chipset or SoC	Package Version
Top-Level Package	QAT20.L.1.1.40-00018

1.3.3 Licensing for Linux* Acceleration Software

The acceleration software is provided under the licenses listed in the following table. When using or re-distributing dual-licensed components, you may do so under either license.

Component	License	Directories
User Space only components	Berkeley Software Distribution (BSD)	./quickassist/lookaside/ access_layer/src/qat_direct ./quickassist/lookaside/ access_layer/src/common/crypto/ asym ./quickassist/utilities/osal/ src/linux/user_space
Common User Space and Kernel Space Library	Berkeley Software Distribution (BSD)	./quickassist/build_system ./quickassist/include ./quickassist/lookaside ./quickassist/utilities/osal (except items in openssl)
adf_ctl	Dual BSD/GNU General Public License (GPL) v2	./quickassist/utilities/adf_ctl
Kernel space driver	GPL v2	./quickassist/qat/drivers
Compatibility layer for older kernel versions	GPL	./quickassist/qat/compat
User Space DMAble Memory Driver	Dual BSD/GPL v2	./quickassist/utilities/ libusdm_drv
Libcrypto*	OpenSSL	./quickassist/utilities/osal/ src/linux/user_space/openssl
QAT Firmware	Redistribution	./quickassist/qat/fw
Calgary corpus and Canterbury corpus test files	Public Domain	./quickassist/lookaside/ access_layer/src/sample_code/ performance/compression

1.3.4 SHA256 Checksum Information

The following table provides SHA256 checksum information.

Package	SHA256 Checksum
QAT20.L.1.1.40-00018	941cd7aed2081b36e84d157510b7c31a5121e9df7a676ecfbc92be71-ae395884

1.4 List of Files in Release

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

1.5 Intel QAT API Updates

The Intel QAT Application Program Interface (API) version number is different from the software package version number.

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

- [Intel QuickAssist Technology Cryptographic API Reference Manual](#)
- [Intel QuickAssist Technology Data Compression API Reference Manual](#)

1.6 Technical Support

Intel offers support for this software at the API level only, defined in the Programmer's Guide and API reference manuals listed in the *Related Documentation* section.

For technical support, including answers to questions not addressed in this document, visit the technical support forum, FAQs, and other support information at [Intel Support](#).

1.7 Environmental Assumptions

The following assumptions are made about the deployment environment:

- The driver object/executable file on disk should be protected using the normal file protection mechanisms, so it is writable by only trusted users, for example, a privileged user or an administrator.
- The public key firmware image on the disk should be protected using normal file protection mechanisms, so it is writable only by trusted users, for example, a privileged user or an administrator.
- The Intel QAT device should not be exposed (through the *user space direct* deployment model) to untrusted users.
- The Dynamic Random-Access Memory (DRAM) is considered to be inside the trust boundary. The traditional memory-protection schemes provided by the Intel architecture processor and memory controller, and by the OS, is to prevent unauthorized access to these memory regions.
- Persistent keys were not considered, but the storage media are also considered inside the cryptographic boundary.
- The driver exposed device file should be protected using the normal file protection mechanisms so that it could be opened and read/written only by trusted users.

1.8 Related Documentation

Title	Number
Intel QuickAssist Technology for Linux* - Getting Started Guide (HW 2.0)	632506
Intel QuickAssist Technology for Linux* - Release Notes (HW 2.0)	632507
Intel QuickAssist Technology for VMware* - Release Notes (HW 2.0)	766469
Intel QuickAssist Technology - Programmer's Guide (HW 2.0)	743912
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

2 Release Updates

2.1 Known Issues

2.1.1 QATE20-8981 [Sample Code] sym_dp_update_sample Functional Sample Code application execution will fail

Title	[Sample Code] sym_dp_update_sample Functional Sample Code application execution will fail
Reference	QATE20-8981
Description	CPM2.0 hardware does not support the wireless Kasumi F8 algorithm and the associated sample code application will fail.
Implication	The sym_dp_update_sample functional applications will fail with the following output: main(): Starting Sym Dp Update Sample Code App ... symDpUpdateSample(): cpaCyStartInstance initSession(): cpaCySymDpSessionCtxGetSize initSession(): cpaCySymDpInitSession [error] LacSymSession_ParamCheck() - : Invalid API Param - cipherAlgorithm
Resolution	This will not be resolved as the CPM2.0 hardware does not support this algorithm.
Affected OS	Linux
Driver/Module	QAT IA - Symmetric

2.1.2 QATE20-9131 [DC] - Incorrect XXHASH32 can be generated when using error injection and buffer overflow occurs when using accumulated XXHASH32

Title	[DC] - Incorrect XXHASH32 can be generated when using error injection and buffer overflow occurs when using accumulated XXHASH32
Reference	QATE20-9131
Description	When using Data Compression service with LZ4 accumulated XXHASH32 sessions in conjunction with Error Injection the service will not trigger Recovery mode but shall return a CPA_DC_VERIFY_ERROR error instead.
Implication	Recovery mode will not trigger for LZ4 with Error Injection and instead return a Verify error: -18 CPA_DC_VERIFY_ERROR.
Resolution	Future Fix
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.1.3 QATE20-9671 [DC] - Accumulated XXHash32 is not supported for LZ4 decompress operations

Title	[DC] - Accumulated XXHash32 is not supported for LZ4 decompress operations
Reference	QATE20-9671
Description	Accumulated XXHash32 enables the calculation of a final XXHash32 that is accumulated across all previous requests in a stream. This feature is available for the Compress direction only. The decompression flow is not finalized and not currently functional.
Implication	Accumulated XXHash32 is functional for the Compression direction only.
Resolution	Future Fix
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.1.4 QATE20-19310 [DC] Additional configuration required to enable 8K data decompression performance

Title	[DC] - Additional configuration required to enable 8K data decompression performance
Reference	QATE20-19310
Description	To utilize compression HW slices to full potential while symmetric service enabled a modified policy needs to be applied for this mode of operation.
Implication	Decompression performance is not fully realized and limited to ~83% for 8K compressed payloads.
Resolution	This issue can be resolved by modifying <code>./quickassist/qat/drivers/crypto/qat/qat_4xxx/adf_4xxx_hw_data.c:50</code> and changing <code>dc_me_active_thd_mask = 0x03;</code> to <code>dc_me_active_thd_mask = 0x01;</code> and then recompile. This modification is for the singular use case where decompression performance at 8K is payloads is required. This will be addressed in a future release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.1.5 QAT20-21905 SVM/AT cannot be enabled when PRS is disabled

Title	SVM/AT cannot be enabled when PRS is disabled.
Reference	QATE20-21905
Description	Shared Virtual Memory(SVM) with Address translation (AT) requires Page Request Support (PRS) to be enabled in BIOS. PRS is disabled by default.
Implication	<p>The following error signatures maybe observed if application attempts to use SVM with AT when PRS is disabled:</p> <p>Following error code is returned an calls to the QAT APIs: Unable to get the physical address of the client buffer</p> <p>Following message displayed in dmesg when running applications using the QAT APIs: DMAR: [DMA Read] Request device [75:00.1] PASID ffffffff fault addr 7fb0c81c0000 [fault reason 113] SM: Present bit in first-level paging entry is clear</p> <p>Some Telemetry data is not updated in this configuration.</p>
Resolution	PRS should be enabled. For this release, user can enable PRS in BIOS by updating the following setting to <i>Enabled</i> : Socket Configuration->IIO Configuration->Intel VT for Directed I/O (VT-d)->Opt-Out Illegal MSI Mitigation This will be addressed in a future release.
Affected OS	Linux
Driver/Module	QAT IA - General

2.1.6 QATE20-21751 [VIRT] - Missing VFs on host when attaching to VMs

Title	[VIRT] - Missing VFs on host when attaching to VMs
Reference	QATE20-21751
Description	When listing VFs on the host with any amount of VFs attached to a virtual machine, you may see missing VFs reported on the host.
Implication	For every virtual machine with an attached VF you may observe two less VFs reported on the host.
Resolution	When assigning a VF to a virtual machine always start with the ones with the highest BDF and work back. This workaround ensures no missing VFs on the host. This will be addressed in a future release.
Affected OS	Linux
Driver/Module	4xxx Kernel module

2.1.7 QATE20-22999 [Sample Code] Functional sample applications will fail if service is not enabled on first QAT Endpoint

Title	[Sample Code] Functional sample applications will fail if service is not enabled on first QAT Endpoint
Reference	QATE20-22999
Description	When sample application is executed which requests service that is not enabled on the first endpoint, the application will fail.
Implication	If first endpoint is configured with asym, running application that uses symmetric such as ccm_sample will fail with following error signatures even if other endpoints enable symmetric crypto. # ./ccm_sample main(): Starting CCM Sample Code App ... algChainSample(): cpaCyStartInstance algChainSample(): Generation-Encryption Process algChainSample(): cpaCySymSessionCtxGetSize CCM encrypt [error] cpaCySymSessionCtxGetSize() - : The instance handle is the wrong type algChainSample(): cpaCyStopInstance algChainSample(): Sample code failed with status of -1
Resolution	Workaround is to enable necessary service on the first endpoint.
Affected OS	Linux
Driver/Module	QAT IA - Symmetric

2.1.8 QAT20-18924 [MCC] MCC SKUs may consume more power than expected

Title	[MCC] MCC SKUs may consume more power than expected
Reference	QAT20-18924
Description	Due to Power Management changes in MCC platforms one QAT device in every socket is permanently clock gated when not processing requests which leads to inevitable heartbeat failures and device resets. Current FW workaround increases power consumption by keeping QAT in active state. Intel is working on workaround that does not have impact on power consumption.
Implication	Higher power consumption is possible
Resolution	This is no workaround currently available.
Affected OS	Linux
Driver/Module	QAT Firmware

2.1.9 QAT20-20272 [XCC/MCC] Spurious heartbeat failures may be observed on some SKUs

Title	[XCC/MCC] Spurious heartbeat failures may be observed on some SKUs
Reference	QAT20-20272
Description	Time tracking in FW is inaccurate due to power management causing that frequency of HW counter that is used as reference for time measurements appears lower than expected. This may lead to delayed heartbeat and telemetry updates when devices become idle. Intel is working on workaround that removes dependency on the HW counter.
Implication	No functional impact, these messages can be ignored.
Resolution	This is no workaround currently available.
Affected OS	Linux
Driver/Module	QAT Firmware

2.1.10 QAT20-24970 [Firmware] Potential false positive heartbeat failures

Title	[Firmware] Potential false positive heartbeat failures
Reference	QAT20-24970
Description	When a QAT device is fully utilized and is processing requests with large payloads (e.g. >512MB), false positive heartbeat failures may be reported if the heartbeat check interval is set too low.
Implication	Processing multiple requests with big payload sizes may cause false positive heartbeat failure and trigger PF restart.
Resolution	This issue can be resolved by ensuring that heartbeat interval is large enough to allow big payload request be correctly processed. Recommended minimal heartbeat interval value to be used is 1500 ms. This issue will be addressed in future release.
Affected OS	All
Driver/Module	QAT Firmware

2.1.11 QAT20-23946 [SVM/IOMMU] Request issue doesn't appear in response

Title	[SVM/IOMMU] Request issue doesn't appear in response
Reference	QAT20-23946
Description	Without Address Translation (AT) enabled, QAT hardware can't reliably handle page faults on write operations to invalid memory addresses. This may lead to situations where the operation does not complete properly and error is not reported to user. Only IOMMU pagefault is reported to the user in this case. This does not result in system memory corruption.
Implication	User is responsible for making sure that all destination addresses submitted to HW are valid. Also verify that SW doesn't generate IOMMU pagefaults.
Resolution	Enable AT for SVM/IOMMU use cases.
Affected OS	All
Driver/Module	QAT Firmware

2.1.12 QAT20-28723 [SVM/IOMMU] Incorrect reporting slice timeout due to page request latency

Title	[SVM/IOMMU] Incorrect reporting slice timeout due to page request latency
Reference	QAT20-28723
Description	When using Shared Virtual Memory and Address Translation and system is overloaded or is running out of free memory it may take longer time to process Page Requests. As side effect DRAM transaction originating from QAT that will require Page Request also will take longer to complete. In this case it may happen that slice watchdog will timeout, due to firmware waiting for new data to be read and then passed to the slice.
Implication	Request processing interrupted due to slice watchdog timeout.
Resolution	There is no workaround available.
Affected OS	Linux
Driver/Module	QAT Firmware

2.1.13 QAT20-30635 [VIRT] PF/VF communication fails after attaching VF to guest and rebooting guest OS; performance may also suffer

Title	[VIRT] PF/VF communication fails after attaching VF to guest and rebooting guest OS; performance may also suffer
Reference	QAT20-30635
Description	PF/VF communication may fail after attaching a VF to a guest VM and rebooting the guest OS. This issue is observed on RHEL 9.2 and not on older versions. The cause is related to a significant latency in interrupt handling on the KVM/QEMU side for the specific kernel version. Kernel error messages may include the following: 4xxxvf 0000:04:00.0: IOV response message timeout 4xxxvf 0000:04:00.0: CRC error on msg type 2. Local 25, remote 62 4xxxvf 0000:04:00.0: QAT: Failed adf_iov_block_get When using Shared Virtual Memory and Address Translation
Implication	The issue may cause the guest VM to hang or become unreachable during the QAT driver installation on the guest. The performance of epoll mode on the guest is dramatically reduced.
Resolution	This issue cannot be resolved within the driver. A workaround is to increase the interrupt waiting and polling times, but this may lead to longer VF startup times. It is advised to use an alternative kernel version for optimal performance.
Affected OS	Linux
Driver/Module	N/A

2.2 Resolved Issues

2.2.1 QATE20-3331 [Sample Code] Functional Sample Code Compression applications execution will fail

Title	[Sample Code] Functional Sample Code Compression applications execution will fail
Reference	QATE20-3331
Description	<p>Due to internal implementation details of QAT2.0 Data Compression, there are additional constraints on the expected output buffer sizes for compression operation.</p> <p>The current output buffer sizes are not sufficiently large enough to accommodate the compression operations involved. This will be addressed in later software releases where an API will be made available to determine at runtime the correct output buffer size to be allocated.</p>
Implication	<p>These functional applications will fail with the following output:</p> <pre>./dc_dp_sample: [error] dcCompression_ProcessCallback() - : Unrecoverable error: stateless overflow. You may need to increase the size of your destination buffer ./dc_stateless_multi_op_sample: [error] dcCheckDestinationData() - : Invalid API Param - Destination buffer size should be greater or equal to 512 bytes ./dc_stateless_sample: compPerformOp(): Results status not as expected (status = -11)</pre>
Resolution	This is resolved with the 0.5.5 release.
Affected OS	Linux
Driver/Module	QAT IA - Compression

2.2.2 QATE20-9755 [SRIOV] RLT_ERRLOG may be reported under high concurrent loads

Title	[SRIOV] RLT_ERRLOG may be reported under high concurrent loads
Reference	QATE20-9755
Description	<p>The following error may be reported when running high concurrency loads on Virtual Machines:</p> <pre>4xxx 0000:6b:00.0: AT_GLOBA LO_PAR_STS[0], 00000000, AT_GLOBAL1_PAR_STS[0], 00000000, AT_PAR_STS[0], 00000000 ... 4xxx 0000:6b:00.0: RLT_ERRLOG[0], 00000001, UERRSSMSHAD[0], 00000000, xxxvf 0000:6b:00.7: Fatal error received from PF 0x1</pre> <p>This relates a counter flow and does not have a functional impact to the operation of SR-IOV Virtual Functions.</p>
Implication	Additional debug prints in dmesg may be observed.
Resolution	This is resolved with the 0.5.5 release.
Affected OS	Linux
Driver/Module	QAT IA - Virtualization

2.2.3 QATE20-9669 [DC] - Deflate Dynamic Decompression not optimized for payloads of source length < 4K, destination length <= 16K

Title	[DC] - Deflate Dynamic Decompression not optimized for payloads of source length < 4K, destination length <= 16K
Reference	QATE20-9669
Description	Current data path operations are not optimized for all traffic profiles.
Implication	Expected performance profile for this release does not meet expectations. This can be observed with performance sample code when using 8K payloads that are compressed in HW and where throughput metrics are then reported for the decompress direction.
Resolution	This is resolved with the 0.5.5 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.4 QATE20-9394 [SRIOV] Virtual Functions (VFs) are not automatically detached by hypervisor after Physical Function (PF) restart

Title	[SRIOV] Virtual Functions (VFs) are not automatically detached by hypervisor after Physical Function (PF) restart
Reference	QATE20-9394
Description	The following error may be encountered when attempting to detach SR-IOV VFs: error: Failed to detach device pci_0000_6b_00_1 error: Requested operation is not valid: PCI device 0000:6b:00.1 is in use by driver QEMU, domain <name>
Implication	VFs are not automatically detached by hypervisor after PF restart, requiring a VM shutdown.
Resolution	This is resolved with the 0.5.5 release.
Affected OS	Linux
Driver/Module	QAT IA - Virtualization

2.2.5 QATE20-3860 [SR-IOV] Virtual Functions (VFs) require restart after changing Physical Function (PF) Service configuration

Title	[SR-IOV] Virtual Functions(VFs) require restart after changing Physical Function(PF) Service configuration
Reference	QATE20-3860
Description	Each QAT PF is configured with at most 2 services (Symmetric Crypto, PKE, Data Compression), this is shared with all VFs on the same PCIe endpoint whereby default each PF is configured to use Symmetric + Data Compression services. If a change in enabled services is required then the normal operating procedure is to reconfigure PF and re-create the VFs.
Implication	Following PF and associated VF reconfiguration ./adf_ctl status may report all VFs being operational, however applications can report: ADF_UIO_PROXY err: icp_adf_userProcessToStart: Error reading /dev/qat_dev_processes file.
Resolution	This is resolved with the 0.5.5 release.
Affected OS	Linux
Driver/Module	QAT IA - SRIOV - PF/VF comms

2.2.6 QATE20-10981 [DC] EOLB incorrectly set during stateful decompression

Title	[DC] EOLB incorrectly set during stateful decompression
Reference	QATE20-10981
Description	The application that performs the decompression may stop decompressing the remaining deflate blocks if it is testing the endOfLastBlock field in CpaDcRqResults structure.
Implication	The application that performs the decompression may stop decompressing the remaining deflate blocks if it is testing the endOfLastBlock field in CpaDcRqResults structure.
Resolution	This is resolved with the 0.8.0 release.
Affected OS	Linux
Driver/Module	QAT FW - Compression

2.2.7 QAT20-10966 DC - Invalid checksum value returned with multi-Gzip payload

Title	DC - Invalid checksum value returned with multi-Gzip payload
Reference	QAT20-10966
Description	The issue happens with stateless decompression when submitting a payload with multiple GZip frames. During the decompression of the second GZip frame, the checksum returned by QAT device is incorrect. It does not match the CRC32 checksum reported in the Gzip footer.
Implication	The application will fail to validate the checksum of the decompressed data against the checksum in the GZip footer.
Resolution	This is resolved with the 0.8.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Compression

2.2.8 QATE20-9756 [DC] - autoSelectBestHuffmanTree flag parameter is not honored by acceleration library

Title	[DC] - autoSelectBestHuffmanTree flag parameter is not honored by acceleration library
Reference	QATE20-9756
Description	The autoSelectBestHuffmanTree parameter in CpaDcSessionSetupData is treated as FALSE by acceleration library.
Implication	Applications cannot currently set autoSelectBestHuffmanTree. This could result in lower compressibility.
Resolution	This is resolved with the 0.8.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.9 QATE20-11081 [DC] - API cpaDcResetSession() does not reset E2E internal structure

Title	[DC] - API cpaDcResetSession() does not reset E2E internal structure
Reference	QATE20-11081
Description	The issue happens with stateless decompression when submitting a payload with multiple GZip frames. If the application calls cpaDcResetSession() API after the first Gzip frame has been processed. It will not reset the various checksums defined in dc_integrity_crc_fw_t.
Implication	Application will see unexpected checksums after calling cpaDcResetSession() API.
Resolution	This is resolved with the 0.8.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.10 QATE20-9501 [DC] - Overflow can occur when using output buffer sizes defined by the cpaDcCompressBound API with Dynamic Deflate compression operations under concurrent execution

Title	[DC] - Overflow can occur when using output buffer sizes defined by the cpaDcCompressBound API with Dynamic Deflate compression operations under concurrent execution
Reference	QATE20-9501
Description	The internal calculation for optimal output buffer size for a given input and session configuration when using the cpaDcCompressBound API can yield overflow conditions. This has been observed under concurrent SW thread execution in particular with LZ4s and Dynamic Deflate requests being concurrently processed.
Implication	An application using the cpaDcCompressBound API may require overflow handling until the refinement of the algorithm completes.
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.11 QATE20-9764 [DC] - XXHash32 Checksum is not correct on Overflow when Flush Final is set

Title	[DC] - XXHash32 Checksum is not correct on Overflow when Flush Final is set
Reference	QATE20-9764
Description	When the Accumulated XXHash is used, for the last request if the CPA_DC_OVERFLOW (-11) occurs, this ceases checksum accumulation.
Implication	The user application will observe a CPA_DC_OVERFLOW (-11).
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.12 QATE20-9078 [CY] Concurrent sym;asym services not supported by Performance Sample Code (cpa_sample_code)

Title	[CY] Concurrent sym;asym services not supported by Performance Sample Code (cpa_sample_code)
Reference	QATE20-9078
Description	If symmetric and asymmetric crypto is enabled in QAT configuration files, the driver will report error when running performance sample code (cpa_sample_code).
Implication	It is not possible to currently test symmetric crypto and asymmetric crypto with performance sample code (cpa_sample_code) on one test run.
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.13 QATE20-10480 [DC] - LZ4 compression request may result in a timeout event (-16 CPA_DC_WDOG_TIMER_ERR)

Title	[DC] - LZ4 compression request may result in a timeout event (-16 CPA_DC_WDOG_TIMER_ERR)
Reference	QATE20-10480
Description	When executing LZ4 compression requests, a watchdog timer timeout error (error code -16) may be returned to the application.
Implication	No data will be produced by QAT HW and error code -16 will be reported to the application.
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	QAT FW - Data Compression

2.2.14 QAT20-10606 [Configuration] - Device configurations files are not copied to /etc/ for physical devices on systems with > 2 sockets

Title	[Configuration] - Device configurations files are not copied to /etc/ for physical devices on systems with > 2 sockets
Reference	QAT20-10606
Description	The installation scripts will not create configuration files in /etc/
Implication	Devices on sockets >2 will not be brought up and will be reported as being in the "down" state. The following status will be observed: qat_dev0 - type: 4xxx, inst_id: 0, node_id: 0, bsf: 0000:6b:00.0, #accel: 1 #engines: 9 state: up ... qat_dev7 - type: 4xxx, inst_id: 7, node_id: 1, bsf: 0000:f8:00.0, #accel: 1 #engines: 9 state: up qat_dev8 - type: 4xxx, inst_id: 8, node_id: 2, bsf: 0001:6b:00.0, #accel: 1 #engines: 9 state: down qat_dev9 - type: 4xxx, inst_id: 9, node_id: 2, bsf: 0001:70:00.0, #accel: 1 #engines: 9 state: down ... qat_dev15 - type: 4xxx, inst_id: 15, node_id: 3, bsf: 0001:f8:00.0, #accel: 1 #engines: 9 state: down
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Configuration

2.2.15 QAT20-12942 [DC] - Overflow can occur when using output buffer sizes defined by the cpaDcCompressBound API with Dynamic Deflate compression operations under concurrent execution

Title	[DC] - Overflow can occur when using output buffer sizes defined by the cpaDcCompressBound API with Dynamic Deflate compression operations under concurrent execution
Reference	QAT20-12942
Description	The internal calculation for optimal output buffer size for a given input and session configuration when using the cpaDcCompressBound API can yield overflow conditions. This has been observed under concurrent SW thread execution in particular with LZ4s and Dynamic Deflate requests being concurrently processed.
Implication	An application using the cpaDcCompressBound API may require overflow handling until the refinement of the algorithm completes.
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.16 QAT20-11092 [SRIOV] Default number of VF devices is not available for 4S+ platform

Title	[SRIOV] Default number of VF devices is not available for 4S+ platform
Reference	QAT20-11092
Description	When installing VFs in default configuration on 4S+ platform, some of the VFs are not usable. e.g. Sample application execution fails with error message: [error] SalCtrl_AdfServicesStartedCheck() - : Sal Ctrl failed to start in given time [error] do_userStart() - : Failed to start services
Implication	Sample code application is not usable, some of the devices are down.
Resolution	This is resolved with the 0.9.0 release.
Affected OS	Linux
Driver/Module	N/A

2.2.17 QATE20-9754 [DC] - Deflate Decompression Overflow may result in a timeout event (-16 CPA_DC_WDOG_TIMER_ERR)

Title	[DC] - Deflate Decompression Overflow may result in a timeout event (-16 CPA_DC_WDOG_TIMER_ERR)
Reference	QATE20-9754
Description	When utilizing either stateless/stateful Deflate Decompression sessions, under certain conditions an overflow event may cause watchdog timer timeout error and the driver will report a timeout event (-16 CPA_DC_WDOG_TIMER_ERR).
Implication	The user application will observe a CPA_DC_WDOG_TIMER_ER (-16) error rather than CPA_DC_OVERFLOW (-11).
Resolution	Issue is resolved with updated silicon.
Affected OS	Linux
Driver/Module	QAT IA - Data Compression

2.2.18 QAT20-23616 [Firmware] Shared Virtual Memory (SVM) and Address Translation (AT) disabled

Title	[Firmware] Shared Virtual Memory (SVM) and Address Translation (AT) disabled
Reference	QAT20-23616
Description	When running QAT workloads with AT enabled under loaded traffic conditions, memory page corruption may occur. Intel is looking at a possible workaround for the problem, and until then the QAT firmware/Driver will not make use of or enable SVM with AT.
Implication	It is not currently possible to run with SVM and AT.
Resolution	SVM and AT are available starting with the 1.0.10 release. Refer to the SVM Kernel Requirements section of the Programmer's Guide for details on enabling.
Affected OS	All
Driver/Module	QAT Firmware

3 Revision History

Document Version	Description	Date
016	Updates for 1.1.40 Release	March 2024
015	Updates for 1.0.50 Release	June 2023
014	Updates for 1.0.40 Release	May 2023
013	Updates for 1.02 Release	January 2023
012	Updates for PV Release	November 2022
011	Updates for PC 4S/8S Release	November 2022
010	Updates for PC 2 Release	September 2022
009	Updates for PC 1 Release	August 2022
008	Updates for Beta 8S Release	May 2022
007	Updates for Alpha 8S Release	February 2022
006	Updates for Beta Release	October 2021
005	Updated package and checksum details	June 2021
004	Updated with known issues	May 2021
003	Updates for Alpha Release	April 2021
002	Updated with known issues	February 2021
001	Initial Release	October 2020