# Intel® Rapid Storage Technology 15.2.0.1020 Production Version Release

**22 September 2016**

## Supported Operating Systems

| Platform Support | | OS Version |
|---|---|---|
| 7th Generation core CPU | Skylake CPU | |
| N | Y | *Microsoft Windows 7** |
| N | Y | *Microsoft Windows 7 x64 Edition** |
| N | Y | *Microsoft Windows 8.1*$^1$* |
| N | Y | *Microsoft Windows 8.1 x64 Edition** |
| Y | Y | *Microsoft Windows Server 2012 R2 x64 Edition** |
| Y | Y | *Microsoft Windows 10* $^1$* |
| Y | Y | *Microsoft Windows 10 x64 Edition** |
| Y | Y | *Microsoft Windows 10 TH2* $^1$* |
| Y | Y | *Microsoft Windows 10 TH2 x64 Edition** |
| Y | Y | *Microsoft Windows 10 Redstone1** |

1 - These OS versions pass validation testing, but are not WHQL certified.

# Revision History

| Date | Driver Revision | Build Number |
|---|---|---|
| 22 September 2016 | 15.2.0.1020 PV Release | 1020 |
| 16 September 2016 | 15.2.0.1020 PC Release | 1020 |
| 24 June 2016 | 15.2.0.1008 Beta Release | 1008 |
| 2 June 2016 | 15.2.0.1004 Release | 1004 |
| 15 April 2016 | 15.1.0.1016 Alpha Release | 1016 |
| 8 April 2016 | 15.1.0.1014 | 1014 |

**Notes:**

1. Known Issue is defined as a potential RST issue that has been replicated internally by the Rapid Storage Technology team but has not been root caused to be an RST defect.

2. 15.1 version is renamed to 15.2 version for internal logistic purposes. RST 15.1 version will no longer be used.

3. This build has been validated on and supports Windows 10 RS1.

4. The RAID OROM & UEFI version for this release is 15.2.0.2754, the driver and user interface version is 15.2.0.1020. For RAID configurations, it is recommended that both the pre-OS and RST OS driver components are updated. Please contact your CE for further details.

5. No RST support for PCIe storage devices in AHCI mode.

# Supported Hardware

| Chipset Name | Platform | SKU Details | |
|---|---|---|---|
| **Intel® 7th Generation Core Processor Platforms** | | | |
| Intel® 7th Generation Core Processor Family Platform I/O SATA AHCI/RAID Controller | Intel® 7th Generation Core Processor Mobile LP **SPT** PCH-LP (Mobile-LP) | • **Base-U (A)**<br>• Premium-U | |
| **Skylake Platforms (N – 1)** | | | |
| Intel® 100/C230 Series Chipset Family | Skylake SPT PCH-H (Desktop/WS) | • **H110 (A)**<br>• **Q150 (A)**<br>• **B150 (A)**<br>• Z170 | • H170<br>• Q170<br>• C236 |
| Intel® 100/C230 Series Chipset Family | Skylake SPT PCH-H (Mobile/Mobile WS) | • HM170<br>• QM170<br>• CM236 | |

| Intel® 6th Generation Core Processor Family Platform I/O SATA AHCI/RAID Controller | Skylake SPT PCH-LP (Mobile) | • **Base-U (A)**<br>• Premium-U<br>• Premium-Y |
|---|---|---|

**A – Does not support RAID**
**H – HEDT SKU**

# Resolved Issues

| Resolved Issues in 15.2.0.1020 PV Release | | |
|---|---|---|
| **Reference No** | **Description** | **Affected OS's** |
| 1304649417 | Crash dump is not generated on raid configurations | windows.10_rs1.x64 |
| 1804345567 | SLP_S0 residency is sporadically poor on samples | windows.10_rs1.x64 |
| 1804297007 | System - PNP (disable and enable) with IO Before and After (Reliability)" failed. | windows.10_th.x64 |
| 1804333817 | 'Flexible data protection (Recovery)' is not available when the secondary hard drive is the same size as the primary hard drive. | All OS |
| 1405255592 | Glitch in camera video feed when access to USB simultaneously with SRT background traffic | windows.10_rs1.x64 |
| 1804340898 | Hang after power off cache disk | All OS |
| 1804297003 | BSOD 0xF4 when run restart only test on win7OS. | windows.7.x64 |
| 1804333718 | Create option missing from RST UI in discrete graphics legacy boot mode with RAID enabled. | windows.7.x64 |
| 1804338631 | Intel RST 15.0.0.1039 UI displays Windows 10 version and build number different from msinfo | windows.10_th.x64, windows.10_rs1.x64 |
| 1804335800 | RST Bugcheck A0 during stress test when resuming from hibernate | windows.10_rs1.x64 |
| 1804327407 | Windows 10 is not listed as a supported OS in the Readme File Information for IRST | windows.10_th.x64 |
| 1804327868 | BSOD when performing S4 right after creating RAID volume with OS | windows_10_x64 |
| 1804306938 | M.2 SSD also show SMART risk event when a SMART HDD is connected | |

| 1804327229 | Error message when user try to import DevSlp registry keys | windows.10_rs1.x64 |
|---|---|---|
| 1804324647 | Platform hangs during enter into S3/S4 with remapping | windows.10_rs1.x64 |
| 1804315575 | The new ZPODD tool version is still not changed ( 1.0.0.1003) after installed ZPODD tool v15.0 | All OS |
| 1804322496 | iRST will disappear from Control Panel after repair with different install kit | windows_10_th_desktop_x64 |

## Resolved Issues in 15.2.0.1008 Beta Version

| Reference No | Description | Affected OS's |
|---|---|---|
| 1804299849 | Link Power Management state is disabled when RST driver is installed | windows_10_x64 |
| 1804279647 | There is BSOD under S3/S4 stress test overnight | other |
| 1804302853 | USB KB/MS lose function when installing Win7 on RAID mode NVME SSD | windows_7_x64 |
| 1804302745 | System shows blue screen after installing iRST driver on QS sample | All OS |

## Resolved Issues in 15.2.0.1004 Version

| Reference No | Description | Affected OS's |
|---|---|---|
| 1804293895 | RST driver cannot be installed, because 7TH GENERATION SATA AHCI DID is wrong | windows_10_th_desktop_x64 |
| 1804295141 | Inf has been updated to reflect the platform supported sku's | All OS |
| 1804279720 | Devslp function doesn't work with certain SSD's. | windows_8_x64 |
| 1804279858 | ZPODD tool shows error message "No Zero Power ODD or intel RST driver found" | windows_8.1_x32 |
| 1804279657 | CSMI_SAS_PHY_INFO cannot be obtained on some kind of chipset | windows_7_x64, windows_8.1_x64 |
| 1804279783 | System occurred BSOD (0XA0) when the first time enter S4 after create recovery volume in RSTUI. | windows_7_x64 |
| 1804279750 | S3 resume ODD lost issue | windows_7_x64, windows_7_x32 |
| 1804279815 | Long time to sleep or resume (S3/S4) from system with IRST v14.8.1.1043. | Windows 10-64 |

## Resolved Issues in 15.1.0.1016 Alpha Version

| Reference No | Description | Affected OS's |
|---|---|---|
| 4939311 | Additional 7TH GENERATION platform SKU support added | Windows 10-64 |

## Resolved Issues in 15.1.0.1014

| Reference No | Description | Affected OS's |
|---|---|---|
| 4938767 | Issue with HDD returning to maximum performance level when resuming from CS. | Windows 10-64 |
| 4938838 | RST does not process some HPA security commands. | Windows 10 – 64 |
| 4938874 | System will hang after finishing disk schedule error checking. | Windows 7-64 |
| 4938911 | NVMe APST registry function fails with S3/S4 resume. | Windows 10 – 64 |
| 4938497 | No performance improvement after PCIe remapping enabled. | Windows 8.1-64 |
| 4938904 | Power consumption increased with certain platform configurations. | Windows 10 – 64 |
| 4939144 | BSOD xEF while running S3 testing. | Windows 10-64 |
| 4938799 | Link power management in UI doesn't change the registry values after deleting RAID 1 or 0 | Windows 10 - 64 |
| 4937068 | ROHI: SMART Event disk rebuilding after system reboot of successful Raid 1 creation | Win7-64,Windows 8 - 64,Windows 8 - 64 |
| 4938308 | RST un-installer doesn't recover original Windows register settings which can have OS performance impact | Windows 10-64 |
| 4938720 | Special characters during creating volume inside Name text box are accepted but should not be. | Win7-64,Windows 8 - 64 |
| 4938976 | Some NVMe devices hang when sending pass through command | Win7-64,Windows 10-64, Windows 8 - 64 |
| 4938782 | Cannot unlock hard drive after creating RAID | Windows 8 - 64 |
| 4938766 | Cannot delete RRT (Recovery) volume when RTD3 is enabled in BIOS | Windows 10-64 |
| 4938754 | UI shows unknown port for cache disk after accelerating disk with remapped disk | Windows 10 - 64 |

# Known Issues

| Known Issues in 15.2.0.1020 PV Version | | |
| --- | --- | --- |
| **Reference No** | **Description** | **Affected OS's** |
| 1804342367 | There is a black screen on S4 stress test | windows.10_th.x64, windows.7.x64 |
| 1804342366 | OS does not run smoothly during about one minute after resume from s3. | windows.10_th.x64 |
| 1804340991 | Keyboard loses function at the "Ctrl+I" menu in RAID mode after touch the touchpad | windows.10_rs1.x64 |
| 1804340990 | Cannot use left/right arrow in RAID menu (Ctrl I) after we idle test unit more than one minute. | windows.7.x64 |
| 1804340981 | The "Ctrl+I" menu will hang when trying to choose some options via "up" between "down" key for a short period of time in RAID mode. | All OS |
| 1804339843 | System has BSOD 0XEF issue when playing video and running" HDD copy and compare" at the same time. | windows.10_rs1.x64 |
| 1804339839 | System will auto enable "write-caching" after S3/S4/CB resume only on NVMe SSD | windows.10_rs2.x64 |
| 1804338638 | When enter SLP_S0, the SSD power consumption is too high - more than 20mW. | windows.10_th.x64 |
| 1804338633 | System get SCT fail under RAID mode. | windows.10_rs1.x64 |
| 1804338632 | "Zero Power ODD Tool" cannot be installed normally on Win8.1 if QFE - KB3126593 is installed. | windows.8_1.x64 |
| 1804338258 | It takes more than 30 sec to send command to NVMe device after it enters D3 | windows.10_th.x64 |
| 1804334481 | When secure boot is on the SUT will boot into OS and create some error logs. | All OS |
| 1804333726 | SUT will hang on Logo when change slot with NVMe SSD | All OS |
| 1804329218 | System Run 3D mark11 Got low performance issue with IRST installed. | windows.10_th.x64 |
| 1804327901 | RAID1 system will hang, when one of the HDDs is removed from the RAID volume. | windows.10_th.x64 |
| 1804325216 | BSOD or Lost disk during S4 on 2 remapped disks with RAID0/RAID1 and in nonRAID status | windows.10_rs2.x64 |
| 1804315591 | There is BSOD on DS3 aging overnight. | windows.10_th.x64 |

| 1804279831 | The benchmark result of RAID1 and RAID5 are too low | other |
| 1804280021 | SRT not correctly created when doing system restart immediately after enabling acceleration | windows_10_th_desktop_x64 |
| 1804279982 | Disk was removed from RRT volume after clicked "Access recovery disk files" | windows_10_th_desktop_x64, windows_8.1_x64 |
| 1804279979 | After using all disk in logical volumes then clicking create, IAStroUI has stopped working appears on the screen | windows_8_x64 |
| 1804279952 | After Encrypting OS on Nvme device, it becomes Inaccessible after 3 Hibernations or 3 Restarts | windows_10_th_desktop_x64 |

# Terminology

| Common Terms and Acronyms | Definition |
| --- | --- |
| AEN | Asynchronous Event Notification |
| AHCI | Advanced Host Controller Interface |
| ATA | Advanced Technology Attachment |
| ATAPI | Advanced Technology Attachment Packet Interface |
| BIOS | Basic Input / Output System |
| BUS PROTOCOL GROUP | A bus protocol group represents a set of bus protocols with similar performance characteristics. Bus Protocol Groups are listed here in decending order of speed:<br><br>1- PCIe<br>2- SATA |
| Chipset | A term used to define a collection of The PNHCI components required to make a PC function. |
| CSMI | OEM Common Storage Management Interface for reporting RAID configurations and SMP, SSP, STP pass through. |
| DEVSLP | Serial ATA Device Sleep |
| DMA | Direct Memory Access |
| DOS | Disk Operating System |
| DIPM | Device Initiated Power Management |
| Disk's Write Cache | A memory device within a hard drive, which is allocated for the temporary storage of data before that data is copied to its permanent storage location. |
| GB | Giga-byte = $1024^3$bytes |
| HDD | Hard Disk Drive |
| HIPM | Host Initiated Power Management |

| | |
|---|---|
| Hot Plug | A term used to describe the removal or insertion of a SATA disk while the system is powered on. |
| ICH | Input / Output Controller Hub |
| InstantGo* | Microsoft Windows* 8.1 connected standby low-power state that features extremely low power consumption while maintaining Internet connectivity. |
| KB | Kilo-byte  = 1024bytes |
| LPM | Link Power Management |
| M.2 | Specification for internally mounted computer expansion cards and associated connectors. It replaces the mSATA standard. Formerly known as the Next Generation Form Factor (NGFF) |
| MB | Mega-bytes  = $1024^2$bytes |
| MEMORY GROUP | A memory group represents a set of backend storage media types with similar performance characteristics. Memory Groups are listed here in ascending order of speed:<br>1- Spindle Device (HDD)      4- PCIe NAND Device (SSD)<br>2- NAND Spindle Hybrid Device      5- PCIe NAND Device (SXP)<br>3- PCH SATA NAND Device (SSD) |
| mSATA | Computer bus interface that connects host bus adapters to mass storage devices such as hard disk drives and optical drives. Uses PCI Express Mini Card-like connector that is electrically SATA. |
| NAI | Notification Area Icon |
| NTFS | NT File System |
| NVC | Non-Volatile Cache |
| NVMe | Non-Volatile Memory Express: Non-Volatile Memory Host Controller Interface Specification (NVMHCI), is a specification for accessing solid-state drives (SSDs) attached through the PCI Express (PCIe) bus |
| OEM | Original Equipment Manufacturer |
| ODD | Optical Disk Drive |
| OROM | Option ROM |
| OS | Operating System |
| PCH | Platform Controller Hub |
| PCIe | PCI Express (Peripheral Component Interconnect Express): is a high-speed serial computer expansion bus standard |
| Port | The point at which a SATA drive physically connects to the SATA controller. |
| PRD | Product Requirements Document |
| PUIS | Power Up In Standby - Drive feature that allows a spindle device to be powered up in standby mode without spinning the disk up. |
| RAID | Redundant Array of Independent Disks<br>Matrix RAID: A configuration supporting two RAID levels by having two volumes in a single RAID array that use Intel® RST |
| RTD3 | Runtime D3 |
| SATA | Serial ATA |
| SIPM | Software Initiated Power Management |

| S.M.A.R.T. | Self-Monitoring, Analysis and Reporting Technology: an open standard for developing hard drives and software systems that automatically monitors a hard drive's health and reports potential problems. |
|---|---|
| SED | Self-Encrypting Drive |
| SRT | Smart Response Technology. Intel® RST's premium feature to use caching technology that enables caching of a device or volume using a faster device |
| SSD | Solid State Drive – non volatile memory used as storage media |
| SSHD | Solid-State Hybrid Drive |
| TB | Tera-byte = $1024^4$bytes |
| UEFI | UEFI pre-OS driver |
| UI | User Interface |
| ZPODD | Zero Power Optical Disk Drive |