Intel® Rapid Storage Technology (Intel® RST) 18.6.1.1016– Production Version Release

September 2021

Supported Operating Systems
Microsoft Windows 11 x64*
Microsoft Windows 10 20H2 x64*

Revision History

Date	Driver Revision	Build Number
September 2021	18.6.1.1016 PV release	1016

Notes:

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

2. New features for Intel® RST 18.6 release
   - Support for Microsoft Windows* 11 x64 OS

3. The RAID UEFI version for this release is 18.1.1.5201(VMD)/18.31.3.5434(non-VMD), the driver and user interface version is 18.6.1.1016(VMD)/18.36.1.1016(non VMD) and Intel® Optane™ memory™ and Storage Management (HSA) driver version 18.1.1020.0. For Intel® RST Premium features (e.g., RAID, Intel® Optane™ memory, CPU Attached Storage), it is recommended that both the Intel® RST pre-OS and Intel® RST OS driver components are updated.

Resolved Issues

Resolved Issues in 18.6.1.1016 Release			
ID	**Title**	**Operating System**	**Component**
18017228338	BSOD/Hang intermittently seen during OS install observed following Intel® Optane™ memory volume creation in WINPE and reboot	windows.20h1_vibranium.x64	Driver
18015806505	BSOD 154/A0/50 sporadically observed during S4 with RAID volume	windows.20h1_vibranium.x64	Driver
18016390016	Failed to boot into OS after doing dirty shutdown during Intel® Optane™ memory disable process.	windows.20h1_vibranium.x64	CLI
18015509879	[RST][MW] IOCTL improvements due to RST middleware service hang or error issues	windows.20h1_vibranium.x64	Driver/RST service
18017148373	[Stability][S3] BSOD, volmgr, 161 during S3 flow with Intel® Optane™ memory	Windows 11 X64*	Driver
18017007522	BSOD D1 intermittently seen during DPMO S3 with I/O testing	Windows 11 X64*	Driver
18016991417	BSOD KERNEL_MODE_HEAP_CORRUPTION (13a) pointing to iaStorVD.sys during CS Cycling	Windows 11 X64*	Driver
18016957351	Could not set thermal throttling level during tests with Intel® Optane™ memory	windows.20h1_vibranium.x64	Driver
18016731101	Can't detect SD7.0 again after reboot and re-plug SD7.0 after 1 minutes.	windows.20h1_vibranium.x64	Driver
18016883921	IOCTL fails when sent to Ronin nvme drive (1117)	windows.20h1_vibranium.x64	Driver
18016811162	IOCTL fails (1117) on PG as offline array member (metadata only on one part)	windows.20h1_vibranium.x64	Driver
18016117789	Nvme IOCTL not completed when sent in D3 state	windows.20h1_vibranium.x64	Driver
18016524305	Intel® Optane™ memory and Storage Management app intermittently failed to launch	windows.20h1_vibranium.x64	Driver

	(0xA0080000/0xA00906B3) when attach TBT3 storage device to system		
18016623122	IOCTL NvmePassThroughCommandTimestamp(address , (byte)MANAGE_FEATURE.FEATURE_TIMESTAMP) does not work	windows.20h1_vibr anium.x64	Driver
18016608767	[WHQL][Window*11]Hardware-enforced Stack Protection Compatibility Test fails against Intel(R) Chipset SATA/PCIe RST Premium Controller	Windows 11 X64*	Driver
18015831486	Warning needed when driver version is 19 and later with HSA 18 version	windows.20h2_vibr anium.x64	HSA
18014809926	There is no toast notification sent when RAID is broken, and language is set to Japanese	windows.20h2_vibr anium.x64	HSA
NA	BSOD 0x7E seen intermittently with RAID0+5 when running some S4 tests during "Add disk" migration	windows.20h2_vibr anium.x64	Driver
18014051012	[APST][Nvme] APST does not get disabled on certain NVMe drives when Power Options is set to high performance	windows.20h2_vibr anium.x64	Driver
18014539261	Create two RAID volume process(RAID 0 and RAID 5) occur black screen if let system into S4/S5	windows.20h2_vibr anium.x64	Driver
18015315972	BSOD D1 seen sporiadically during stress test	windows.20h2_vibr anium.x64	Driver
18015296605	BSOD upon reboot in safe mode	windows.20h2_vibr anium.x64	Driver
1308448523	Internal empty port text in UI has different styling	windows.20h2_vibr anium.x64	HSA
18014809926	Intel® Optane™ memory and Storage Management icon shows abnormally	windows.20h2_vibr anium.x64	HSA
18014648066	[Intel® Optane™ Memory H10]: 'BSOD 0x9F' /system hang up intermittently when run Restart, Standby, and Hibernate Stress with Intel® Optane™ Memory H10	windows.20h2_vibr anium.x64	Driver
18014750358	System will occur black screen/BSOD and can't enter OS after resume from S4 & set wrong password for HDD.	windows.20h2_vibr anium.x64	Driver
18014267862	[ODD]When try to erase the DVD-RW data on Windows Explorer, sometimes erase process fails	windows.20h2_vibr anium.x64	Driver
18014283796	F6 driver cause system crash when you hot-plug SATA device	windows.20h2_vibr anium.x64	Driver

18015093701	Intel® Optane™ memory H20 stuck in MT2-like performance even after temperature dropped to MT0 with RST during D3/Sx resume	windows.20h2_vibr anium.x64	Driver
18014809926	Intel® Optane™ memory and Storage Management icon shows abnormally.	windows.20h2_vibr anium.x64	HSA
18013639181	" Intel® Optane™ memory and Storage Management" doesn't full screen after rotating	windows.20h2_vibr anium.x64	HSA
18014061843	HSA shows unsupported RRT option, causing UI crash when clicked	windows.20h2_vibr anium.x64	HSA
18014521514	Update HSA copyright date to 2021	windows.20h2_vibr anium.x64	HSA
18014541564	Logo screen flickering when running setupRST.exe	windows.20h2_vibr anium.x64	Installer
18014542640	[HSA Installer] Can't check output from installer process after using switch -help	windows.20h2_vibr anium.x64	Installer
18014200016	BSOD 0xB50D_VRF_iaStorAC BSOD during CS & S4 power cycles intermittently on RAID volumes with ACPID3Cold disabled	windows.20h2_vibr anium.x64	Driver
18014595286	Certain screen app will affect VMD driver initial time (increase 1~3 sec fast startup time)	windows.20h2_vibr anium.x64	Driver
18014061843	Recovery mode actions shown when not supported causing HSA UI crash	windows.20h2_vibr anium.x64	Driver
18014175425	BSOD(code:09f) intermittently occurred during resuming from MS with Intel® Optane™ Memory H10	windows.20h2_vibr anium.x64	Driver

Known Issues

Known Issues in 18.6.1.1016– Release		
ID	**Title**	**Operating System**
18011754113	Intel® Optane™ memory H20 disk is reported as TG in TPV menu	windows.20h2_vibr anium.x64
18017143713	Error message "BootDevice Not Found and Hard Disk-(3F0)" occurred when RAID 0 unit add 1 SSD switch to RAID 5 mode vai HSA UI.	windows.20h2_vibr anium.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 descending order of speed: 1- PCIe* 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	Gigabyte = 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.
HSA	Hardware Supported App
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	Kilobyte = 1024 bytes
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: 1- Spindle Device (HDD) 2- NAND Spindle Hybrid Device 3- PCH SATA NAND Device (SSD) 4- PCIe* NAND Device (SSD) 5- PCIe* NAND Device (SXP)

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 Matrix RAID: A configuration supporting two RAID levels by having two volumes in a single RAID array that use Intel® RST
RTD3	Runtime D3
RS2	Redstone2
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	Intel® 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	Terabyte = 1024^4 bytes
UEFI	UEFI pre-OS driver
UI	User Interface
VC	Validation Candidate
ZPODD	Zero Power Optical Disk Drive