

This Action Alert describes an issue which may or may not affect the customer's product

Intel Technical Advisory

TA-1152

5200 NE Elam Young Parkway
Hillsboro, OR 97124

February 25, 2020

Intel® Tri-mode family of RAID Controllers with firmware version 5.050.00-1367 or 5.050.01-1367 may cause data integrity issues on RAID virtual drives configured using RAID-5 or RAID-6 in Write-Through mode

Products Affected

Intel® RAID Module RMSP3AD160F
Intel® RAID Module RMSP3CD080F
Intel® RAID Module RMSP3HD080E
Intel® RAID Adapter RSP3TD160F
Intel® RAID Adapter RSP3MD088F
Intel® RAID Adapter RSP3DD080F
Intel® RAID Adapter RSP3WD080E

Description

Intel has identified a potential data integrity issue on RAID virtual drives as configured and managed by any of the specified Intel® RAID controllers (identified above).

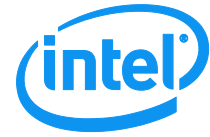
Intel discovered the issue through its own internal test processes. The following criteria must all be true for the potential of bad data to exist within a RAID configured virtual drive:

- The RAID Controller must have firmware versions **5.050.00-1367** or **5.050.01-1367** flashed onto it.
- A virtual drive managed by the RAID controller is configured as either **RAID 5** or **RAID 6**
- The RAID virtual drive must be configured with a **Write-Through** write policy
- Media errors (defective disk sectors) exist within 1 or more of the physical drives that define the RAID virtual drive

The firmware flashed onto the given Intel® RAID controller can be determined by the procedure shown on the next page.

Root Cause

Assuming all defined criteria are met, the firmware allows a read operation to occur from a defective disk sector causing the possible return of incorrect data without reporting any I/O or media errors.



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Corrective Action/Resolution

Update the Intel® RAID controller firmware to version 5.080.00-1965 (on flash package v50.8.0-2066) or later. Firmware updates for the specified Intel RAID controllers can be downloaded from the following Intel web site:

<https://downloadcenter.intel.com/download/28533/Trimode-RAID-Firmware?product=99500>

How to determine the firmware version flashed onto a RAID controller.

- 1) The [StorCli utility](#) is required, there's an EFI, Windows and Linux version. No reboot is required for installing or running this utility.
- 2) Run "**StorCli64 show**" to determine the controller model and controller number associated to it.
- 3) Run "**StorCli64 /cn show**" to query for the RAID controller's details (n is the controller number obtained in step 2)
- 4) Look in the output for the "**FW Version**" field which shows the flashed firmware version.

Example:

```
C:\StorCli>storcli64 show
CLI Version = 007.0813.0000.0000 Dec 14, 2018
Operating system = Windows Server 2016
Status Code = 0
Status = Success
Description = None

Number of Controllers = 2
Host Name = WFP001
Operating System = Windows Server 2016
StoreLib IT Version = 07.0900.0200.0200
StoreLib IR3 Version = 16.04-0

System Overview :
=====
Ctl Model                                Ports PDs DGs DNOpt VDs VNOpt BBU  sPR DS  EHS ASOs Hlth
-----
0 Intel(R)RAIDControllerRSP3WD080F      8  4  0  0  0  0 Msng On 1&2 N  1 Opt
1 Intel(R)IntegratedRAIDModuleRMS3CD080F 8  8  0  0  0  0 Msng On 1&2 N  3 Opt

Ctl=Controller Index|DGs=Drive groups|VDs=Virtual drives|Fld=Failed
PDs=Physical drives|DNOpt=DG NotOptimal|VNOpt=VD NotOptimal|Opt=Optimal
Msg=Missing|Dgd=Degraded|NdAtn=Need Attention|Unkwn=Unknown
sPR=Scheduled Patrol Read|DS=DimmerSwitch|EHS=Emergency Hot Spare
Y=Yes|N=No|ASOs=Advanced Software Options|BBU=Battery backup unit
Hlth=Health|Safe=Safe-mode boot
```



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```
C:\StorCli>storcli64 /c0 show
Generating detailed summary of the adapter, it may take a while to complete.

CLI Version = 007.0813.0000.0000 Dec 14, 2018
Operating system = Windows Server 2016
Controller = 0
Status = Success
Description = None

Product Name = Intel(R) RAID Controller RSP3WD080E
Serial Number = SP71118729
SAS Address = 500605b00ceb3300
PCI Address = 00:18:00:00
System Time = 02/07/2020 14:06:20
Mfg. Date = 03/21/17
Controller Time = 02/07/2020 14:06:20
FW Package Build = 50.5.2-1326
BIOS Version = 7.05.02.0 0x07050400
FW Version = 5.050.01-1367
Driver Name = megasas35.sys
Driver Version = 7.708.12.00
Vendor Id = 0x1000
Device Id = 0x17
SubVendor Id = 0x8086
SubDevice Id = 0x9441
Host Interface = PCI-E
Device Interface = SAS-12G
Bus Number = 24
Device Number = 0
Function Number = 0
Physical Drives = 4
```

```
C:\StorCli>storcli64 /c1 show
Generating detailed summary of the adapter, it may take a while to complete.

CLI Version = 007.0813.0000.0000 Dec 14, 2018
Operating system = Windows Server 2016
Controller = 1
Status = Success
Description = None

Product Name = Intel(R) Integrated RAID Module RHP3CD080F
Serial Number = SK644P0785
SAS Address = 500062b201189580
PCI Address = 00:5e:00:00
System Time = 02/07/2020 14:07:47
Mfg. Date = 11/12/16
Controller Time = 02/07/2020 14:07:46
FW Package Build = 50.8.0-2066
BIOS Version = 7.08.02.0 0x07080401
FW Version = 5.080.00-1965
Driver Name = megasas35.sys
Driver Version = 7.708.12.00
Current Personality = RAID-Mode
Vendor Id = 0x1000
Device Id = 0x16
SubVendor Id = 0x8086
SubDevice Id = 0x352E
Host Interface = PCI-E
Device Interface = SAS-12G
Bus Number = 94
Device Number = 0
Function Number = 0
Drive Groups = 1
```

In this example, controller 0 has flashed an impacted firmware version.



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