

EIN No: SSDPM7-025 Rev. A Date: December 21, 2023 Originator: Enterprise SSD Product Group 3

Engineering Information Notice (EIN)

PRODUCT AFFECTED

For Generic, Standard, KPM7 series

KPM71RUGxxxx Series: 1 DWPD
KPM71RUG1T92: SDFU005GEAxxx
KPM71RUG3T84: SDFU004GEAxxx
KPM71RUG7T68: SDFU003GEAxxx
KPM71RUG15T3: SDFU001GEAxxx
KPM71RUG30T7: SDFU000GEAxxx

KPM71VUGxxxx Series: 3 DWPD
KPM71VUG1T60: SDFUY05GEAxxx
KPM71VUG3T20: SDFUY04GEAxxx
KPM71VUG6T40: SDFUY03GEAxxx
KPM71VUG12T8: SDFUY01GEAxxx

For Generic, SIE, KPM7 series

KPM7XRUGxxxx Series: 1 DWPD
KPM7XRUG1T92: SDFU085GEBxxx
KPM7XRUG3T84: SDFU084GEBxxx
KPM7XRUG7T68: SDFU083GEBxxx
KPM7XRUG15T3: SDFU081GEBxxx
KPM7XRUG30T7: SDFU080GEBxxx

KPM7XVUGxxxx Series: 3 DWPD
KPM7XVUG1T60: SDFUY85GEBxxx
KPM7XVUG3T20: SDFUY84GEBxxx
KPM7XVUG6T40: SDFUY83GEBxxx
KPM7XVUG12T8: SDFUY81GEBxxx

For Generic, SED, KPM7 series

KPM7VRUGxxxx Series: 1 DWPD
KPM7VRUG1T92: SDFU055GEBxxx
KPM7VRUG3T84: SDFU054GEBxxx
KPM7VRUG7T68: SDFU053GEBxxx
KPM7VRUG15T3: SDFU051GEBxxx
KPM7VRUG30T7: SDFU050GEBxxx

KPM7VVUGxxxx Series: 3 DWPD
KPM7VVUG1T60: SDFUY55GEBxxx
KPM7VVUG3T20: SDFUY54GEBxxx
KPM7VVUG6T40: SDFUY53GEBxxx
KPM7VVUG12T8: SDFUY51GEBxxx

For Generic, FIPS, KPM7 series

KPM7WRUGxxxx Series: 1 DWPD
KPM7WRUG1T92: SDFU075GEBxxx
KPM7WRUG3T84: SDFU074GEBxxx
KPM7WRUG7T68: SDFU073GEBxxx
KPM7WRUG15T3: SDFU071GEBxxx
KPM7WRUG30T7: SDFU070GEBxxx

KPM7WVUGxxxx Series: 3 DWPD
KPM7WVUG1T60: SDFUY75GEBxxx
KPM7WVUG3T20: SDFUY74GEBxxx
KPM7WVUG6T40: SDFUY73GEBxxx
KPM7WVUG12T8: SDFUY71GEBxxx

CLASSIFICATION

- Electrical
- Mechanical
- Others

LEVEL

- Hardware
- Software (firmware)
- Document
- Manufacturing
- Others

IMPLEMENTATION

- Factory
- Customer side
- As required
- Repaired
- Retrofit kit required

PRIORITY

- Urgent
- Immediate
- Routine

REVISION LEVEL

For Generic, Non-SED, KPM7 series

KPM71RUGxxxx Series: 1 DWPD
KPM71RUG1T92: SDFU005GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71RUG3T84: SDFU004GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71RUG7T68: SDFU003GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71RUG15T3: SDFU001GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71RUG30T7: SDFU000GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71VUGxxxx Series: 3 DWPD
KPM71VUG1T60: SDFUY05GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71VUG3T20: SDFUY04GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71VUG6T40: SDFUY03GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71VUG12T8: SDFUY01GEAxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

For Generic, SIE, KPM7 series

KPM7XRUGxxxx Series: 1 DWPD

KPM7XRUG1T92: SDFU085GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XRUG7T68: SDFU083GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XRUG30T7: SDFU080GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM71VUGxxxx Series: 3 DWPD

KPM7XVUG1T60: SDFUY85GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XVUG6T40: SDFUY83GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XRUG3T84: SDFU084GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XRUG15T3: SDFU081GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XVUG3T20: SDFUY84GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7XVUG12T8: SDFUY81GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

For Generic, SED, KPM7 series

KPM7VRUGxxxx Series: 1 DWPD

KPM7VRUG1T92: SDFU055GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VRUG7T68: SDFU053GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VRUG30T7: SDFU050GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VVUGxxxx Series: 3 DWPD

KPM7VVUG1T60: SDFUY55GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VVUG6T40: SDFUY53GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VRUG3T84: SDFU054GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VRUG15T3: SDFU051GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VVUG3T20: SDFUY54GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7VVUG12T8: SDFUY51GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

For Generic, FIPS, KPM7 series

KPM7WRUGxxxx Series: 1 DWPD

KPM7WRUG1T92: SDFU075GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WRUG7T68: SDFU073GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WRUG30T7: SDFU070GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WVUGxxxx Series: 3 DWPD

KPM7WVUG1T60: SDFUY75GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WVUG6T40: SDFUY73GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WRUG3T84: SDFU074GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WRUG15T3: SDFU071GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WVUG3T20: SDFUY74GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

KPM7WVUG12T8: SDFUY71GEBxxx

Item	Content	New
EC Rev.	A1	A2
FW Rev.	0103	0104

DESCRIPTION OF CHANGE

1. Fixed issues

(1): Performance

Problem: Drive sequential write performance is not recovered.

Cause: PM7 has throttling mechanism and FW sets throttling parameters with checking internal workload and drive condition. The parameter for random write is different from one for sequential write, FW decides which parameter should be set with internal workload, and the decision is executed with checking Garbage Collection is running or not. However, GC checking is lack of throttling parameter setting. As a result, when GC is executed while workload is changed to Sequential Write, throttling parameter is not updates and performance does not recover.

Fix: Added Garbage Collection checking in throttling parameter decision.

Severity: Middle

Likelihood: Middle

(2): Command Timeout

Problem: The I/O right after power-on may cause a command timeout.

Cause: When the drive startup process (FTL read and expansion to DRAM), if background unmap process, host I/O, GC (Garbage Collection) and user data refresh process are overlapped, command response is delayed.

Fix: Fixed that the host I/O is proceeded by the skipping the GC if the validity determination process for user data during the FTL recovery process, takes some time, that may cause command timeout.

Severity: Middle

Likelihood: Middle

(3): Hung up

Problem: While running drive power cycle test, Write Stream command may not complete.

Cause: There is a process to take over the Stream ID of Multi Stream Write mode after Power cycle. Some setting processes on SoC regarding Stream ID were added in order to adopt the Offload engine that was new function of PM7. There were small windows for deleting Stream ID during the process to take over the Stream ID. If a Stream Write is performed at these timing, a Stream ID error occurs.

Fix: Additional fixed item was applied in the processes regarding deleting the Stream ID.

Severity: High

Likelihood: Low

2. Other change item

(1): FW Header

Removed 32byte header data which was in previous FW file. The header data was not assigned in FW body and was not utilized for FW function. There is no functional influence after removing this header data.

DATE OF APPLICATION

This change is applied to the factory line from March 2024

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