

Firmware Change Note

- 3Dv2 eMMC5.1 Products -

QRA Division
Dec. 22, 2016

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Firmware Change Summary

SK hynix Inc.	Firmware Change Notification		PCN No.	F1612-004-N-00	
			Date	2016-12-22	
PCN Title	FCN for 3Dv2 eMMC5.1		Description of Change	Change Command Queue handling policy (Aligned with Qualcomm policy)	
Purpose	Change CMDQ handling policy PRV value: 0xA2				
Customer	All Customers				
Device	3Dv2 eMCP5.1				
Part No.	221Ball eMCP5.1 Product : H9TQ52ADFTMCUR (64+24) / H9TQ52ACLTMCUR (64+32)		Date Issued : 2016-12-22 Prepared by : Y.E. Cho E-mail : youngeui.cho@sk.com Checked by : K.L. Lee EMMC Quality Engineering Project Approved by : VP H.G. Lee Solution Quality Group		
Remark	3Dv2 eMMC5.1 - Qualcomm CMDQ PRV 0xA2				
Response Due Date	-	Effective Date			Jan. 2017 Shipping (WW701 on Packing Label)

Firmware Change Description

▪ Firmware Change Note

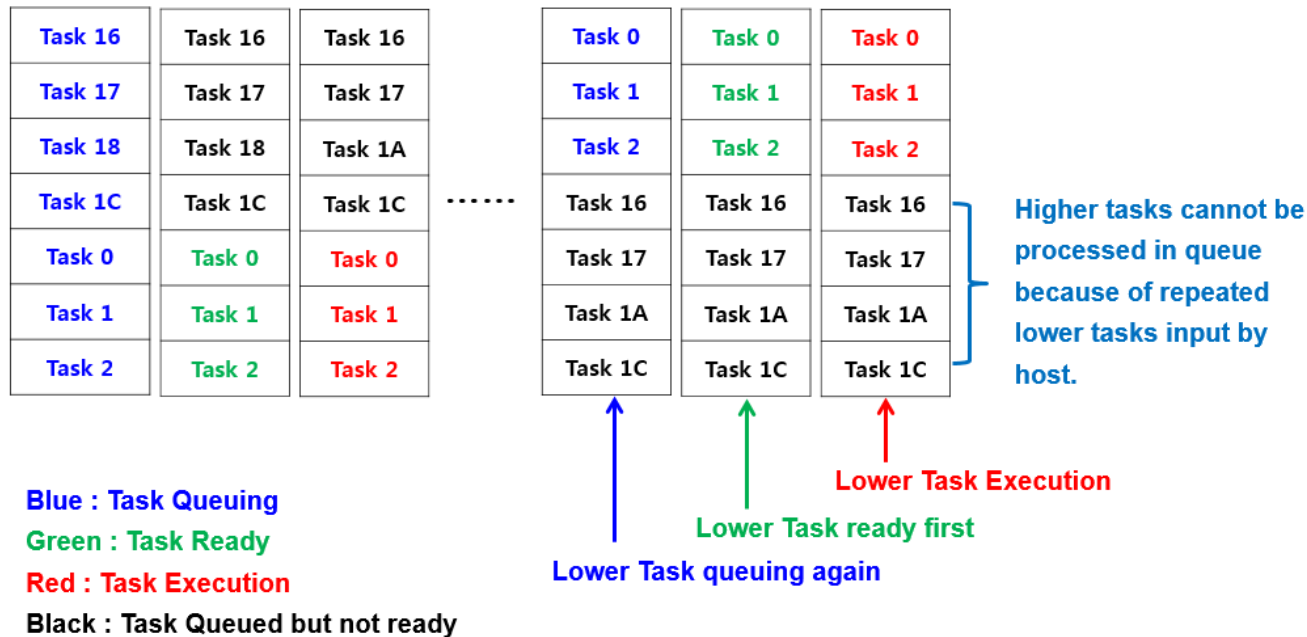
- Change Command Queue handling policy

✓ Root Cause

: **Timeout occurs because command queue handling is not aligned with Qualcomm policy.**

eMMC processes lower number tasks while higher number tasks are waiting in queue

and host sends lower number tasks repeatedly, so higher number tasks cannot be processed within host timeout.

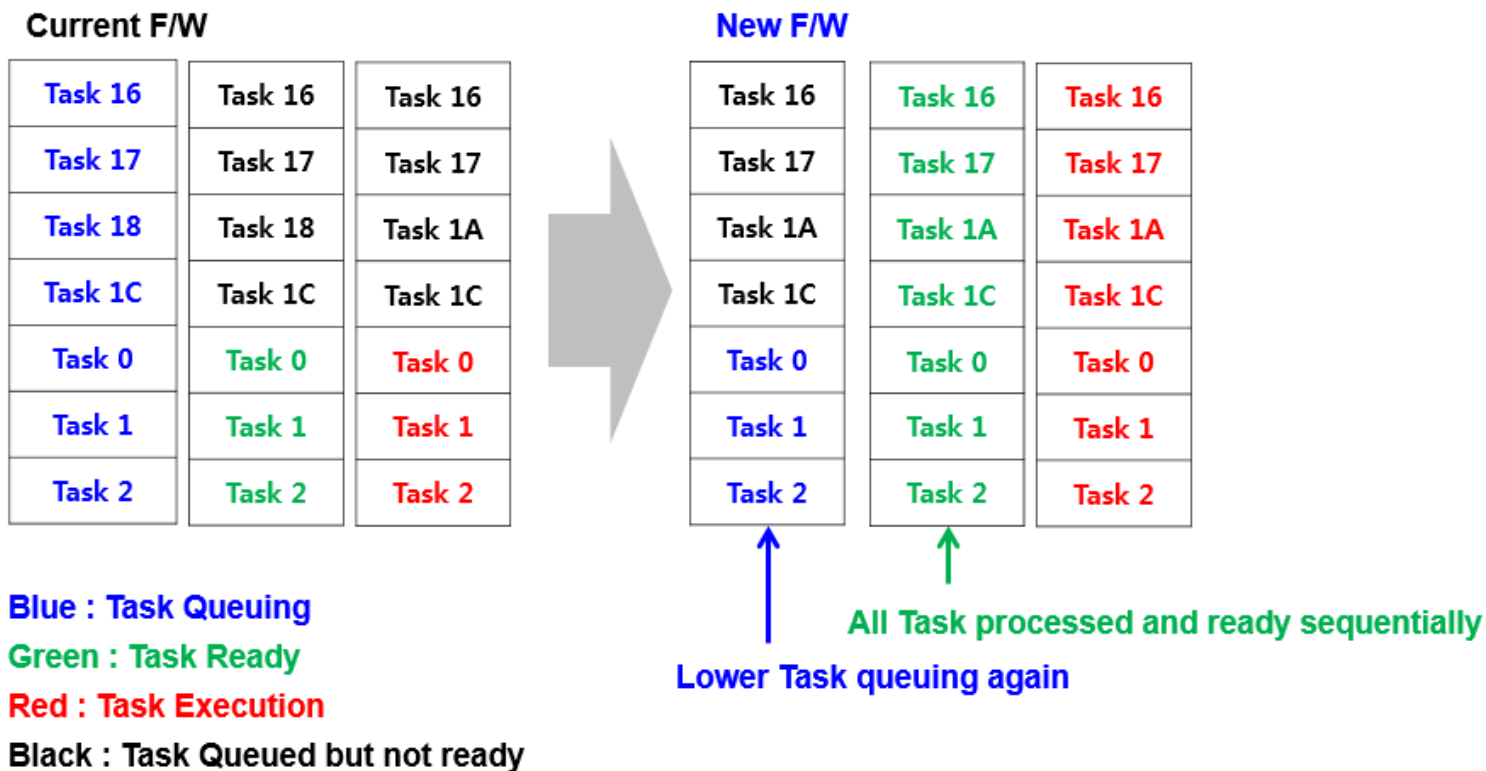


Firmware Change Description

✓ Solution

: **Device will process all task ID sequentially.**

Firmware scans tasks in queue and executes all task equally.



Appendix

Firmware Change Description

TEST RESULTS

TEST Item		Sample Size (ea)	Fail Rate (%)	REMARKS
Seq. Pre Cycle	Write / Read	231	0	
Group1 Normal function	Random test	231	0	
	Mixed test	231	0	
Group2 Temperature / Partition	Room	231	0	
	Hot	231	0	
	Cold	231	0	
Group3 Aging	Mixed function	231	0	
Group4 SPO Aging	SPO Aging	231	0	
	Random SPO Aging	231	0	
	CMD1 SPO Aging	231	0	
	CMD5-0 & Vcc On/Off	231	0	
Group5 Read Aging	Read disturb	231	0	2K + 2M
Group6 Extension Read Aging	Ext. Read disturb	231	0	
Group7 Workload	Workload	231	0	
Performance	write/read performance	231	0	