

Flash Management

White Paper for UDM II plus

July 31, 2015

Version 1.0



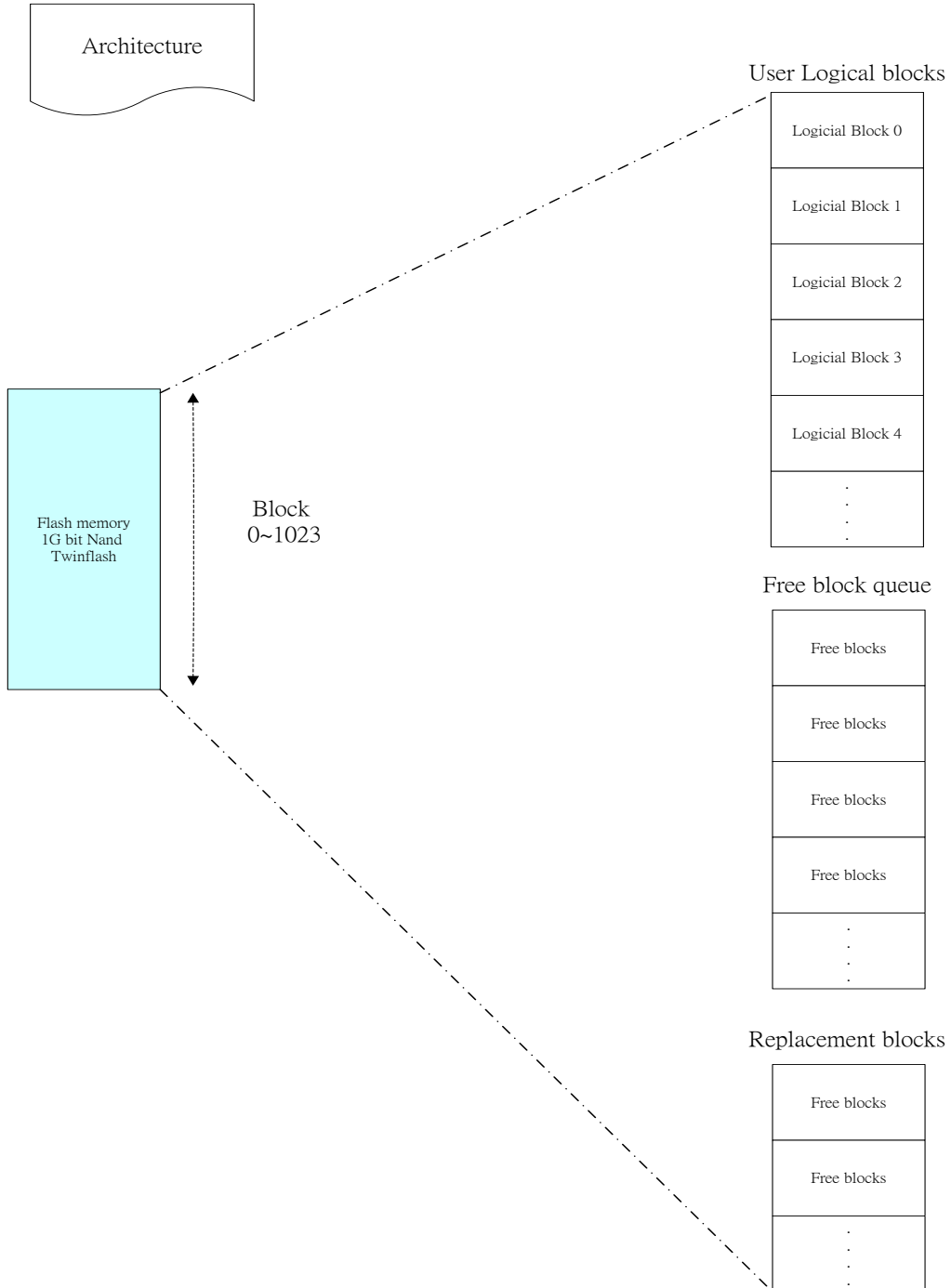
Apacer Technology Inc.

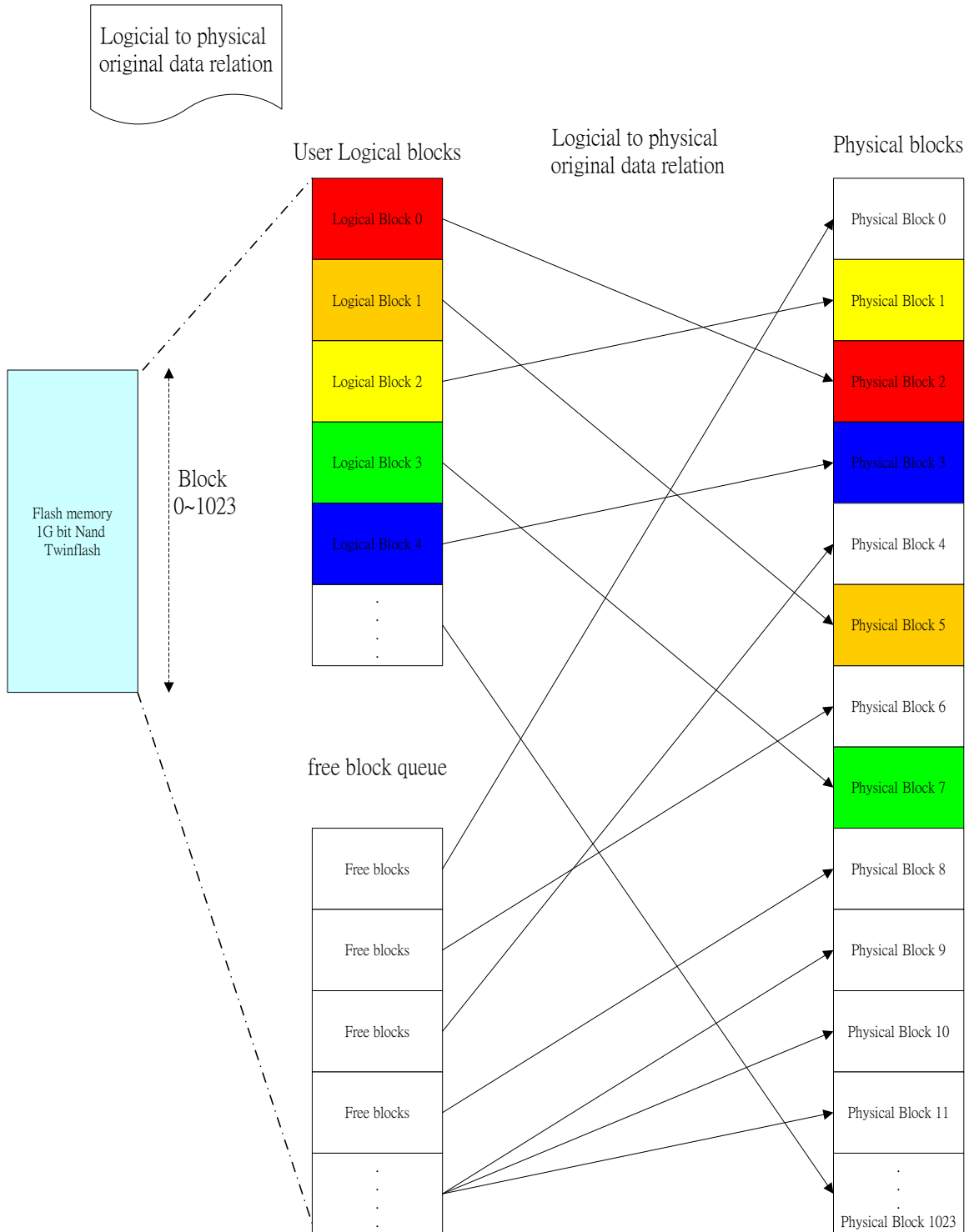
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1. Wear Leveling Architecture

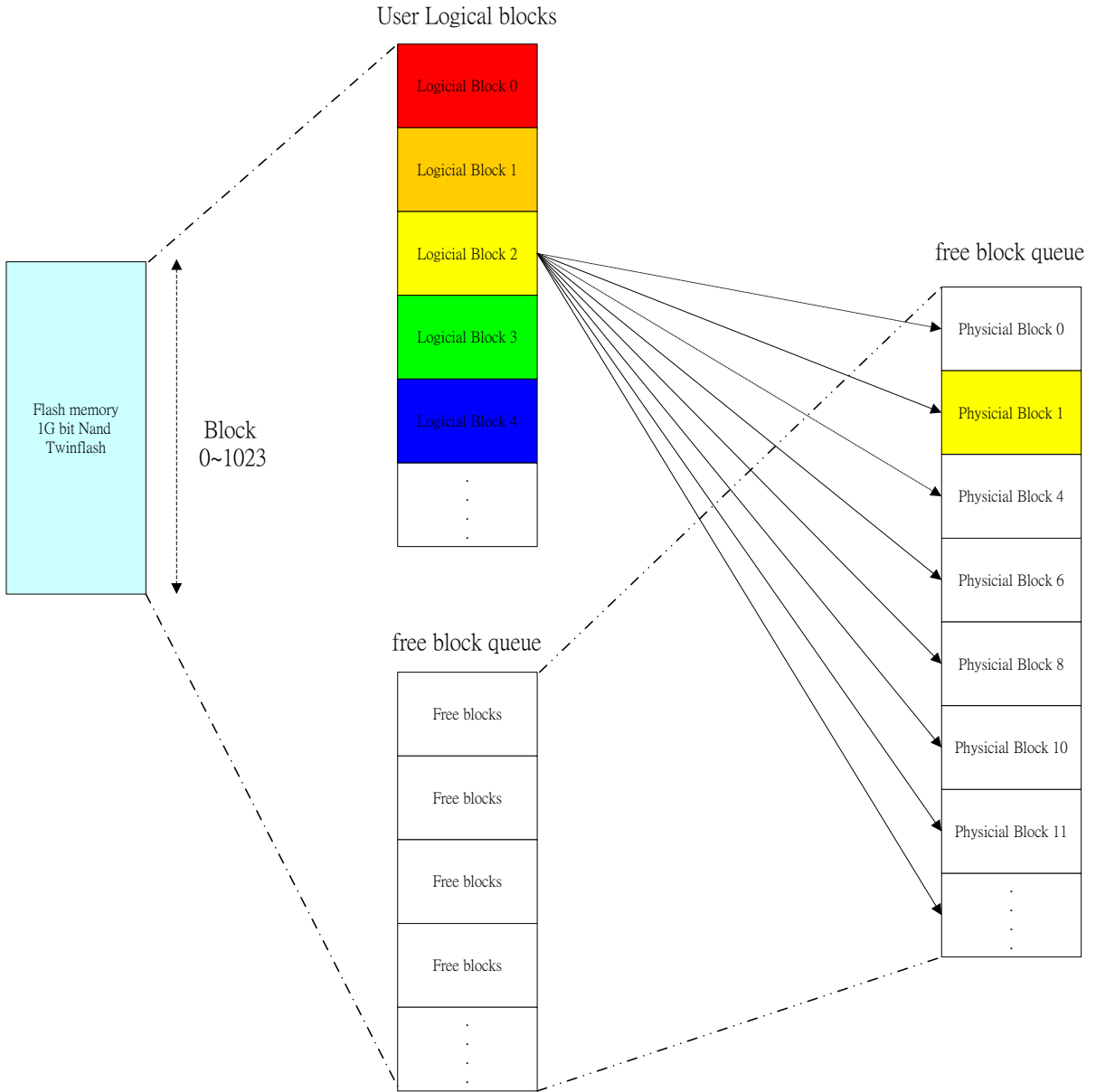
Method: Every N write command , move the data of one logical block to the free block.

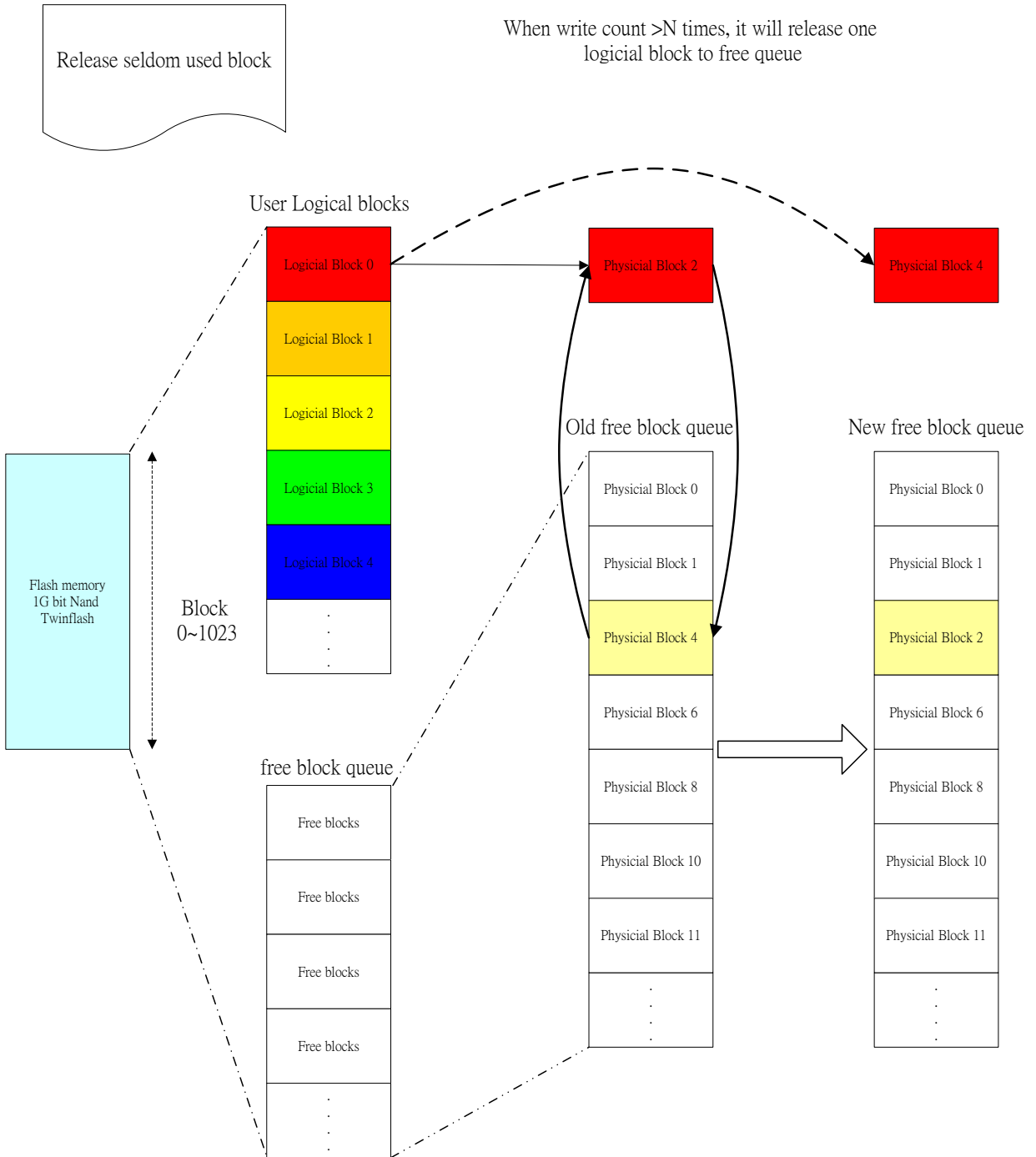


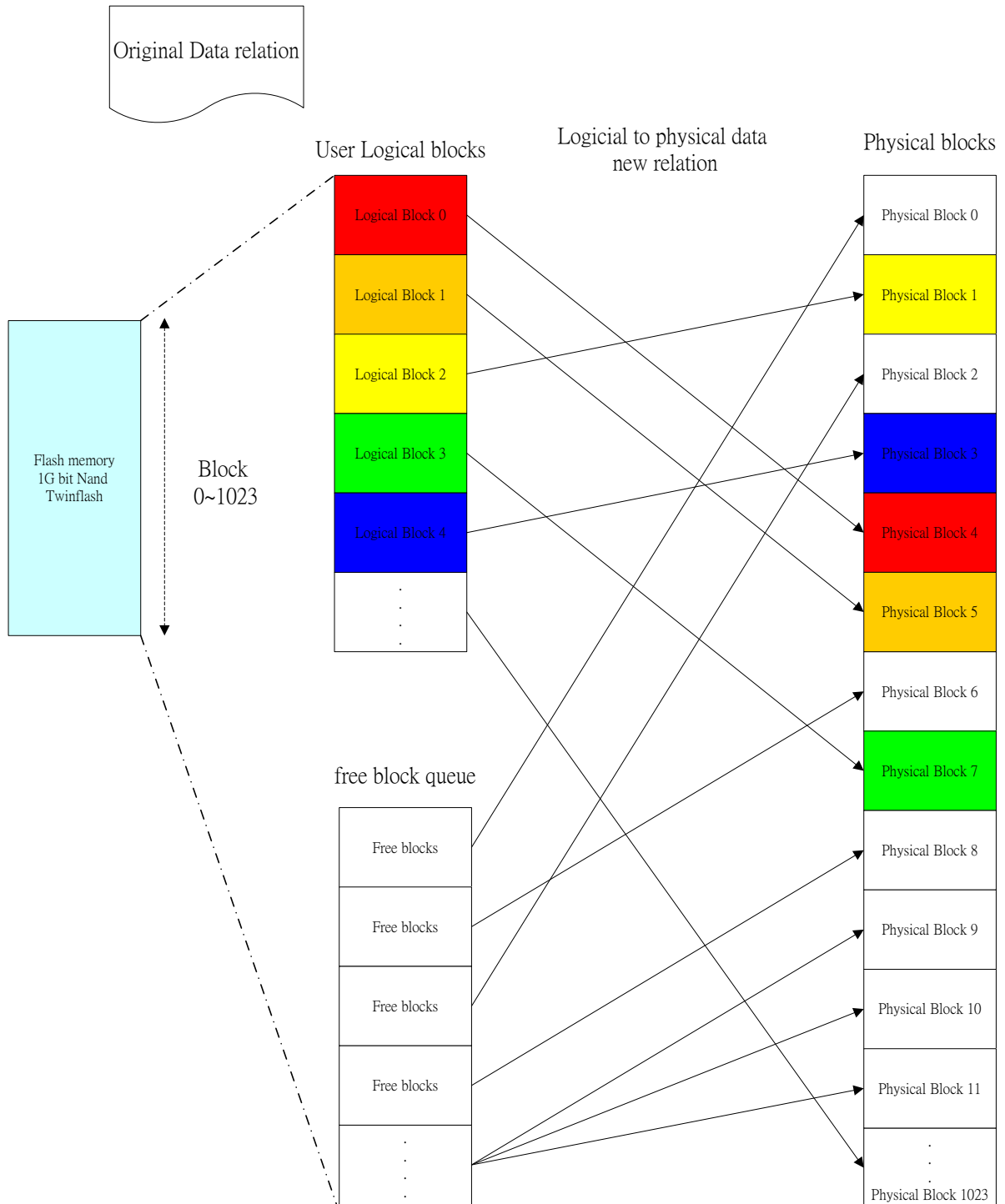


Normal write flow

For example:
If always write logical block 2 area , and write count $\leq N$ times , it get free block from free block queue

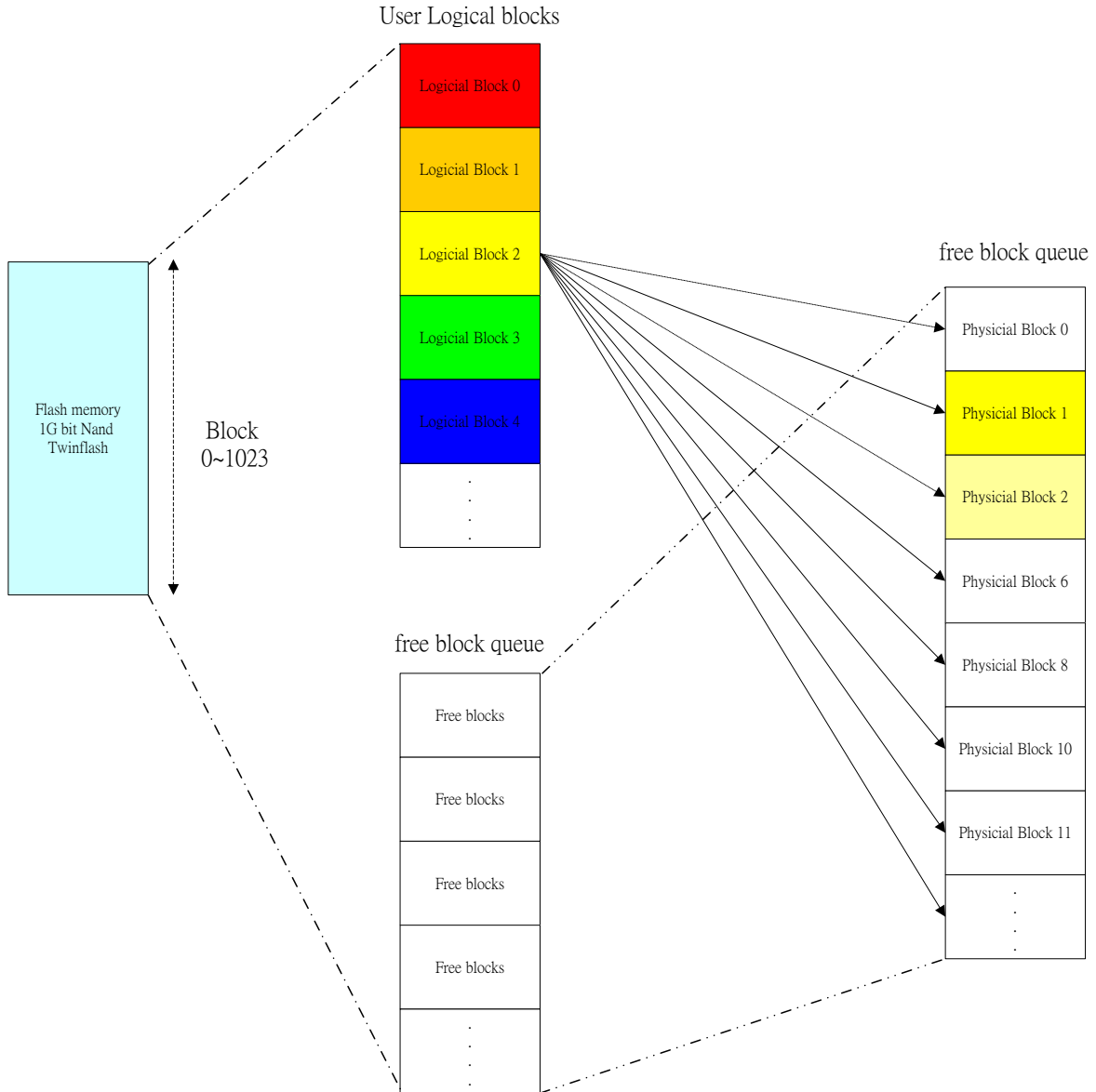






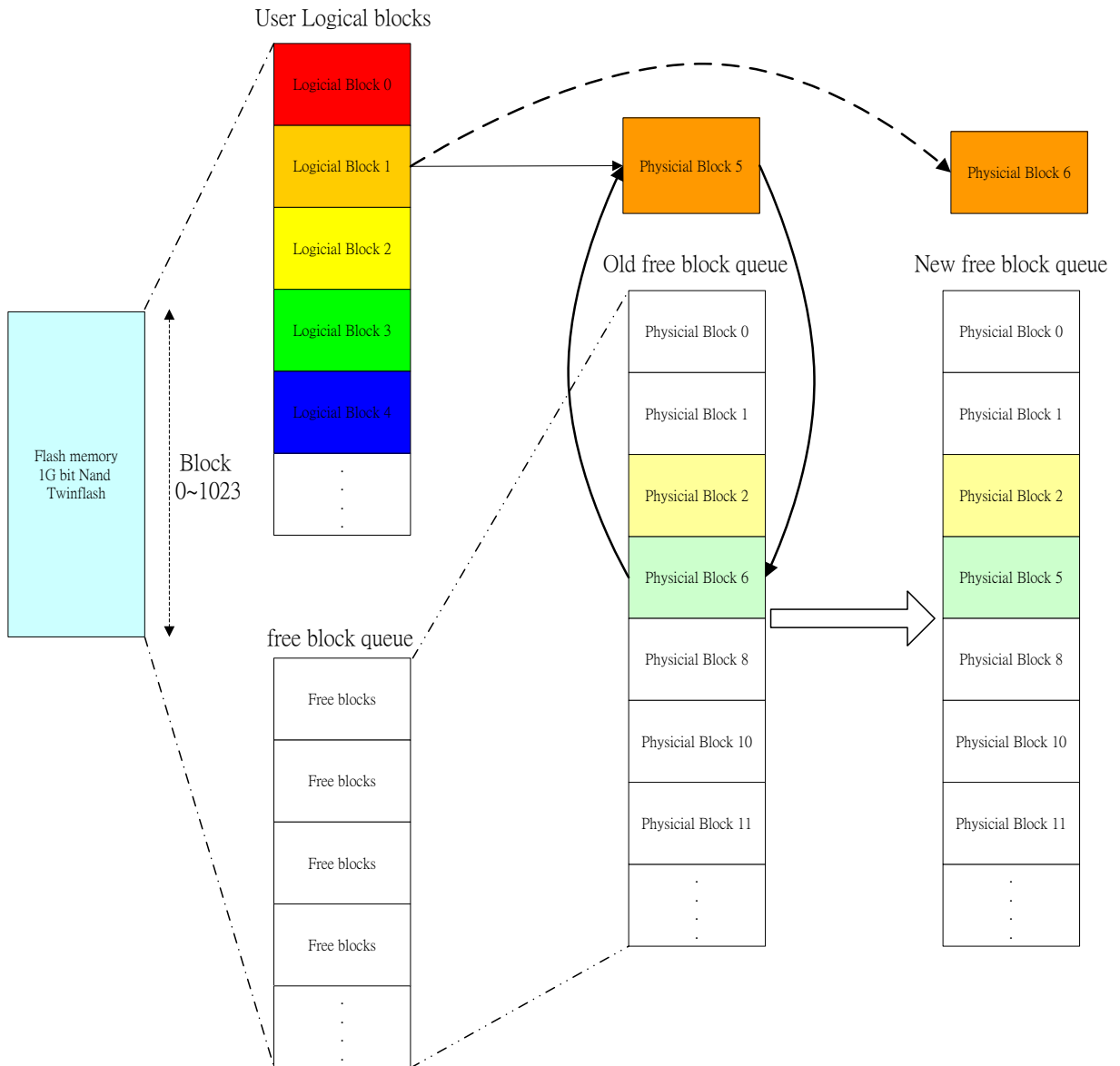
Normal write flow

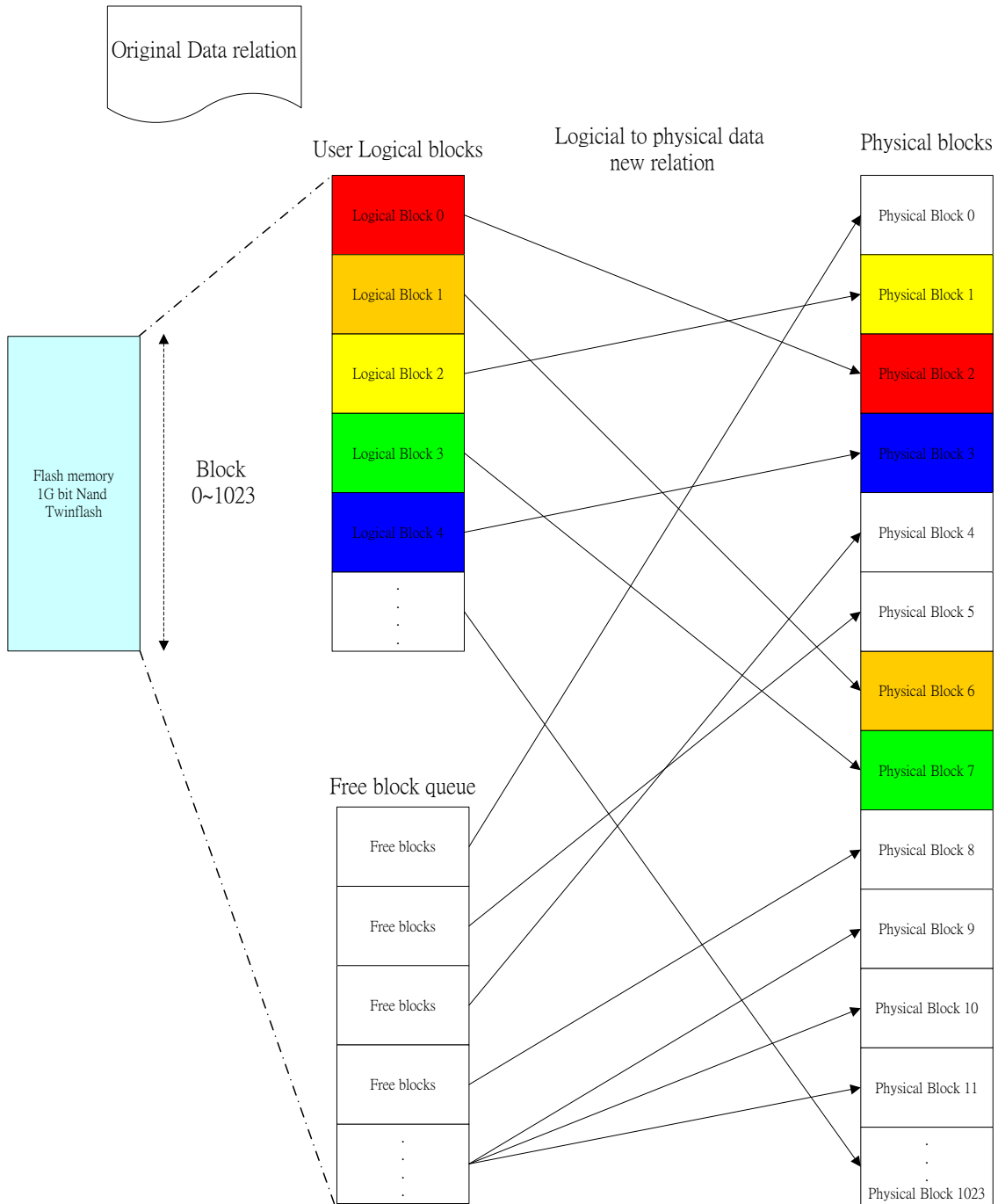
After modify free block queue , the write will be normal write flow when write count $\leq N$ times



Release seldom used block

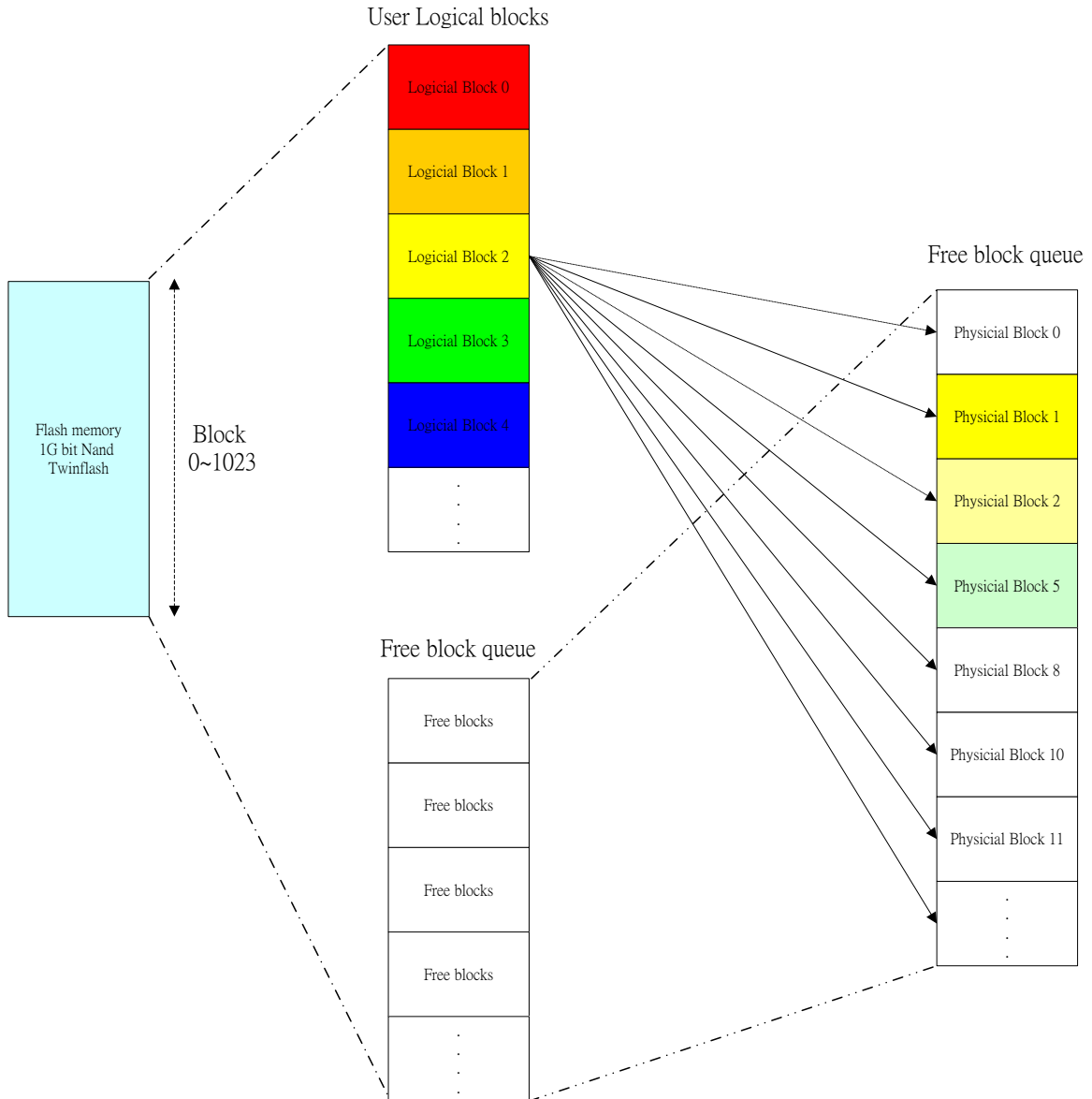
When write count >N times again, it will release next logical block to free queue



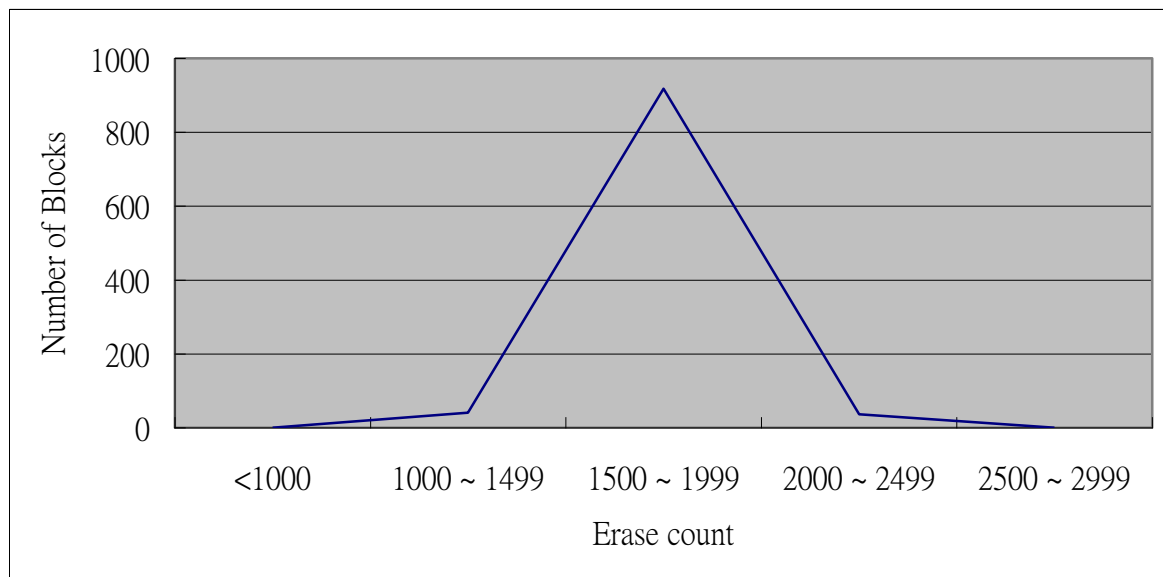
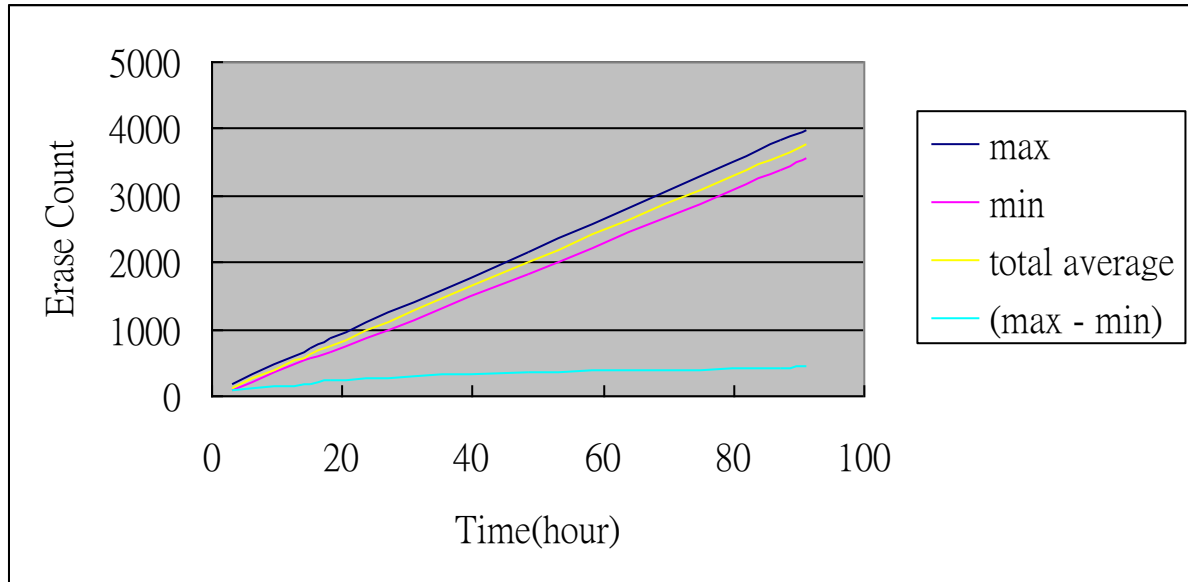


Normal write flow

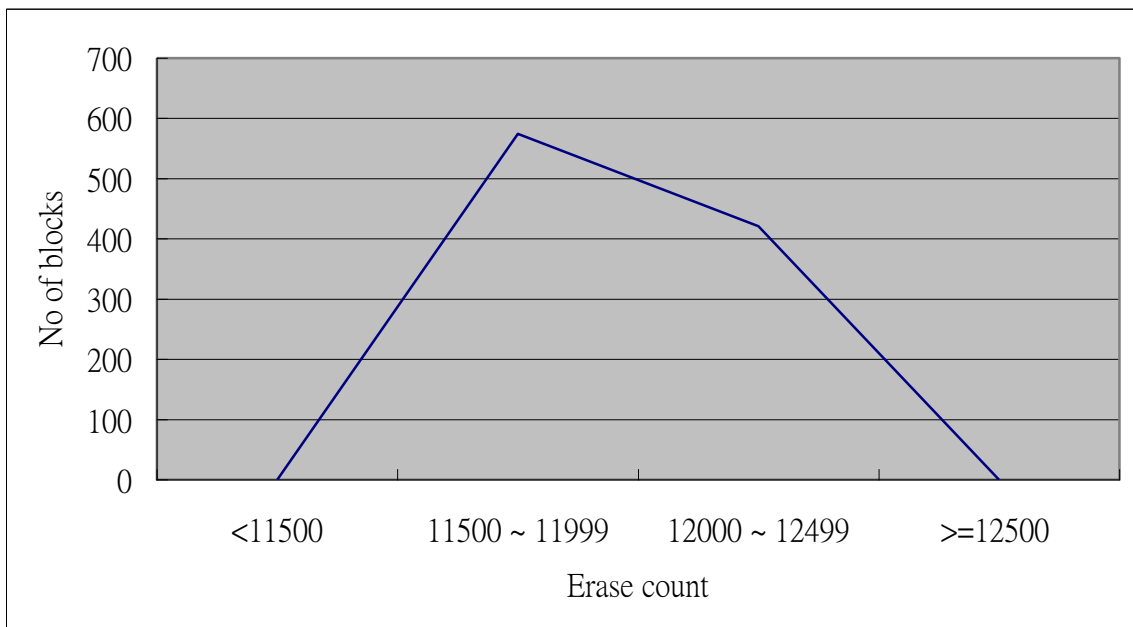
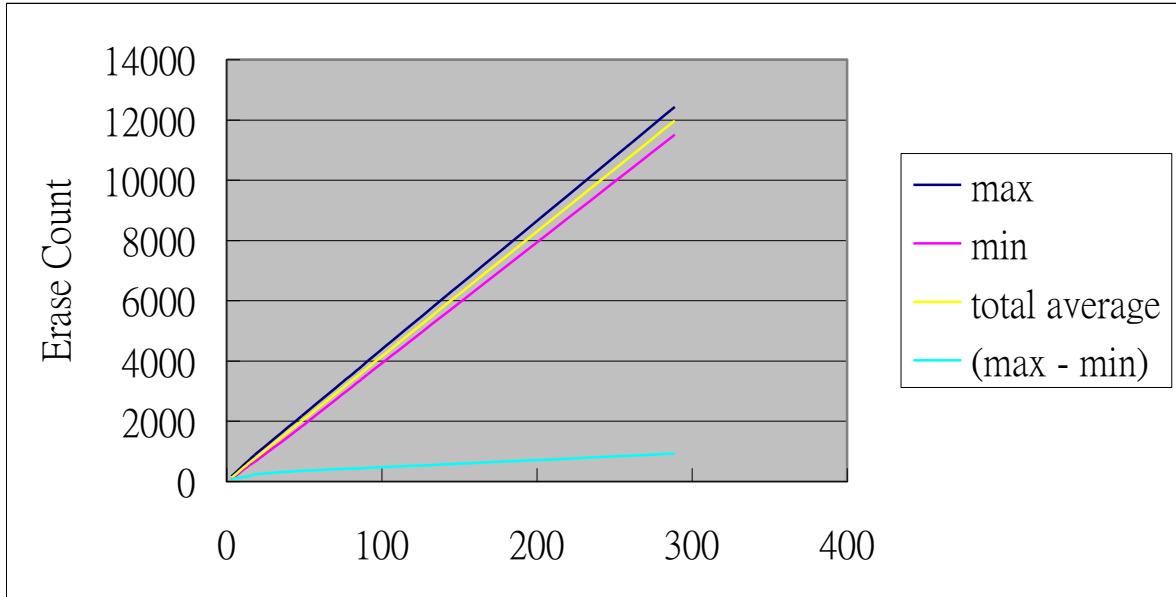
After modify free block queue, the write will be normal write flow when write count $\leq N$ times



Wear leveling test result - A

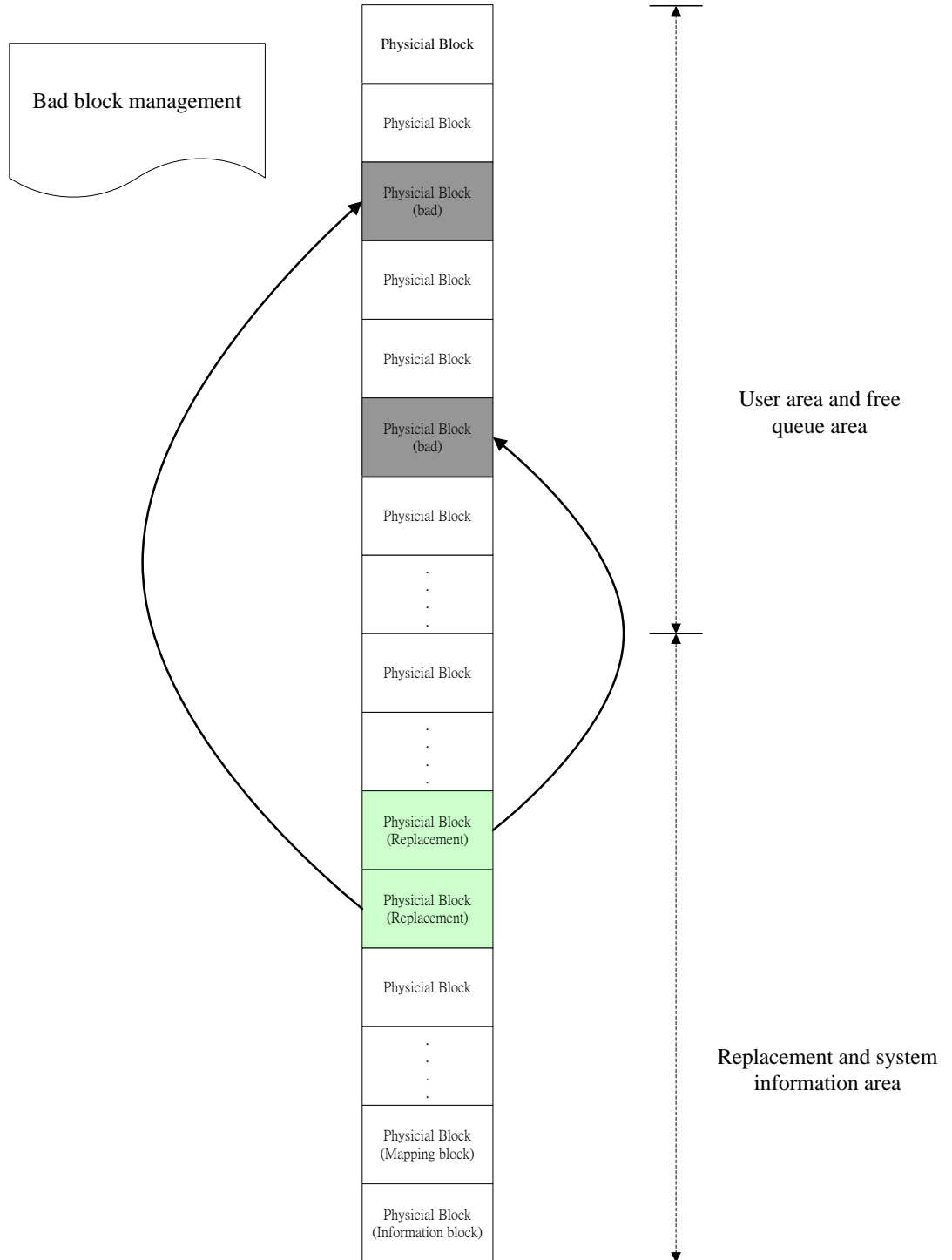


Wear leveling test result - B



2. Bad Block Management

Reserve spare blocks for replace if bad block occurred. The number of reserved spare block depends on flash.



Revision History

Revision	Date	Description	Remark
1.0	07/31/2015	Official release	

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