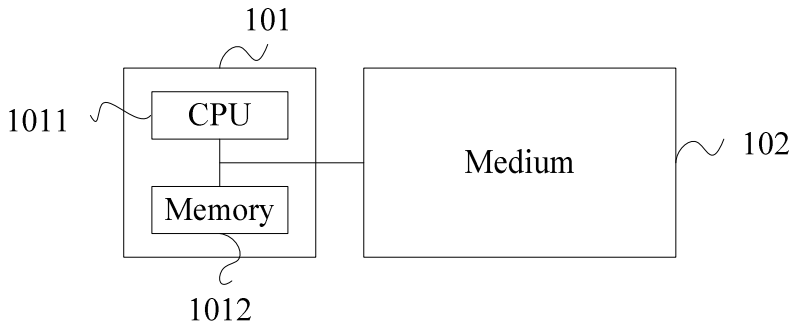
101
1011
CPU
Memory
1012
Medium
102

FIG. 1

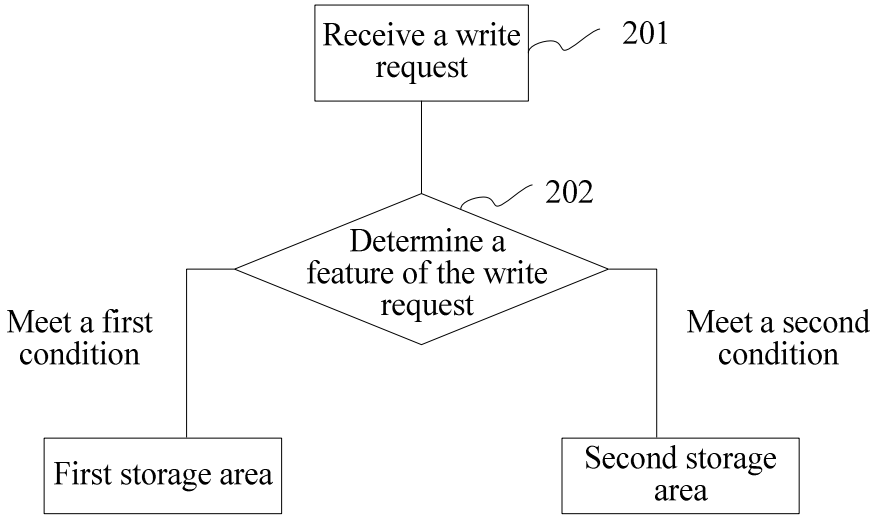
Receive a write request
201
202
Determine a feature of the write request
Meet a first condition
Meet a second condition
First storage area
Second storage area

FIG. 2

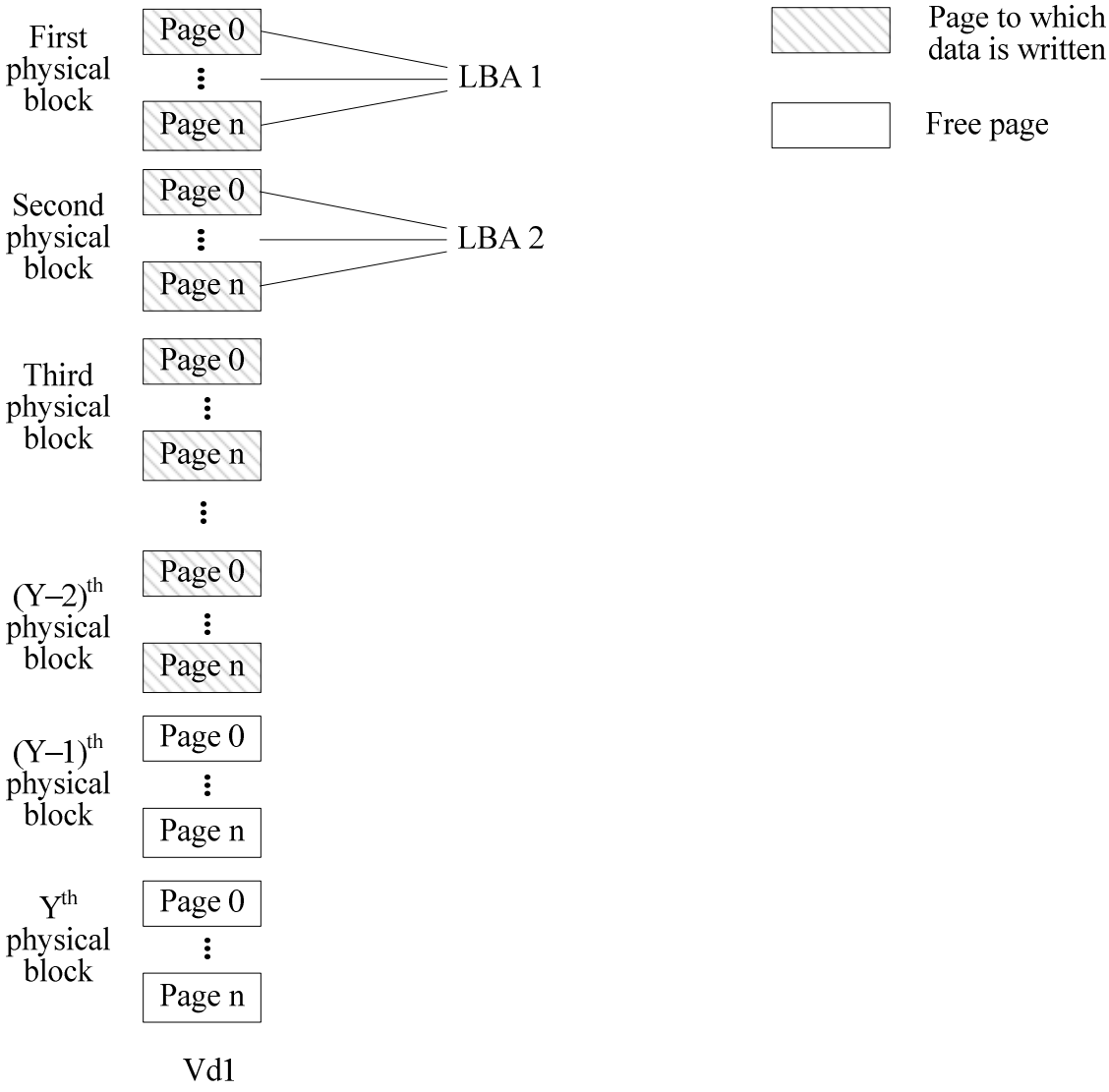
First physical block
Page 0
Page n
LBA 1
Second physical block
Page 0
Page n
LBA 2
Third physical block
Page 0
Page n
(Y–2)th physical block
Page 0
Page n
(Y–1)th physical block
Page 0
Page n
Yth physical block
Page 0
Page n
Vd1
Page to which data is written
Free page

FIG. 3

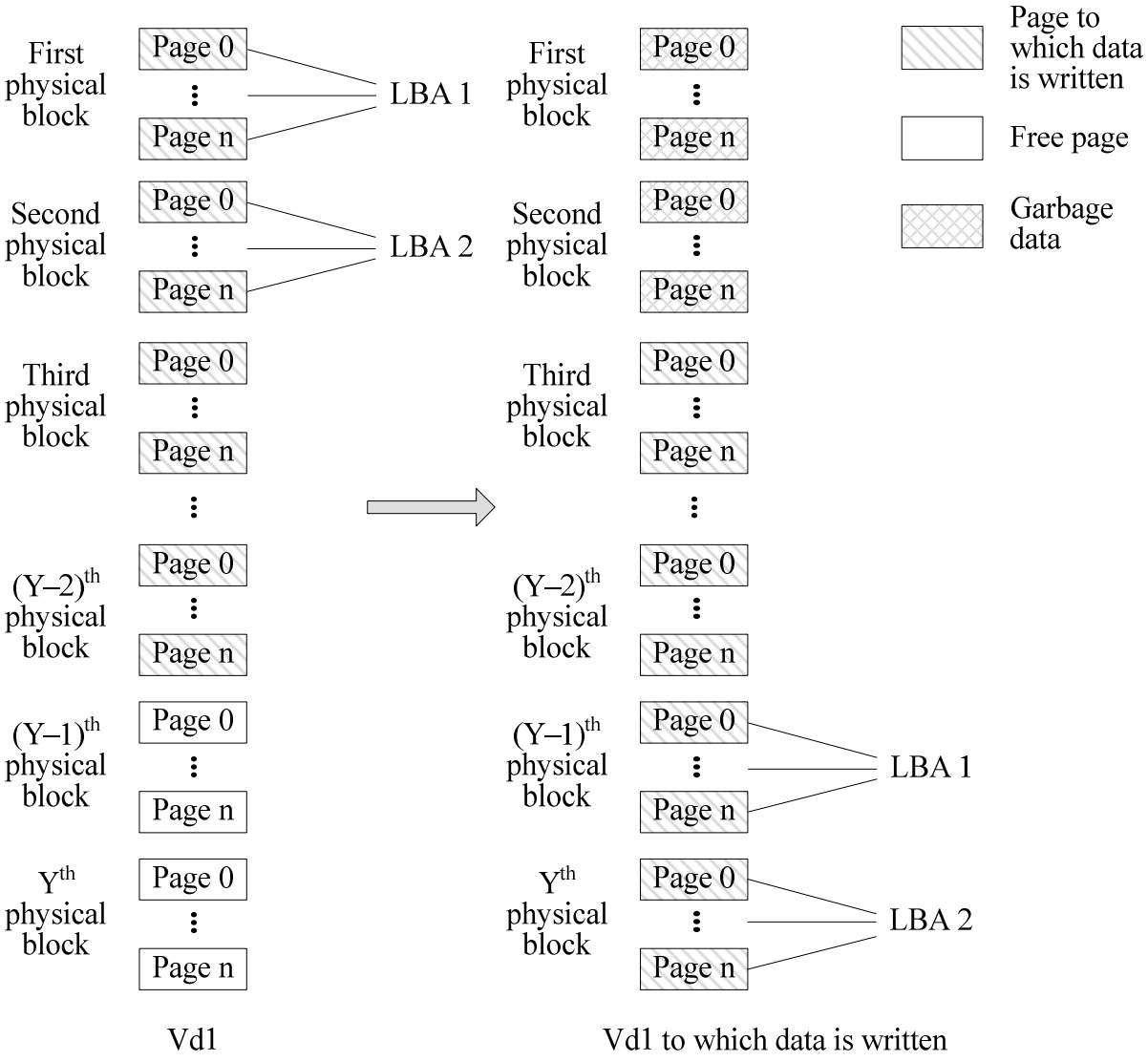
First physical block
Page 0
Page n
LBA 1
Second physical block
Page 0
Page n
LBA 2
Third physical block
Page 0
Page n
(Y–2)th physical block
Page 0
Page n
(Y–1)th physical block
Page 0
Page n
Yth physical block
Page 0
Page n
Vd1
Page to which data is written
Free page
Garbage data
LBA 1
LBA 2
Vd1 to which data is written

FIG. 4

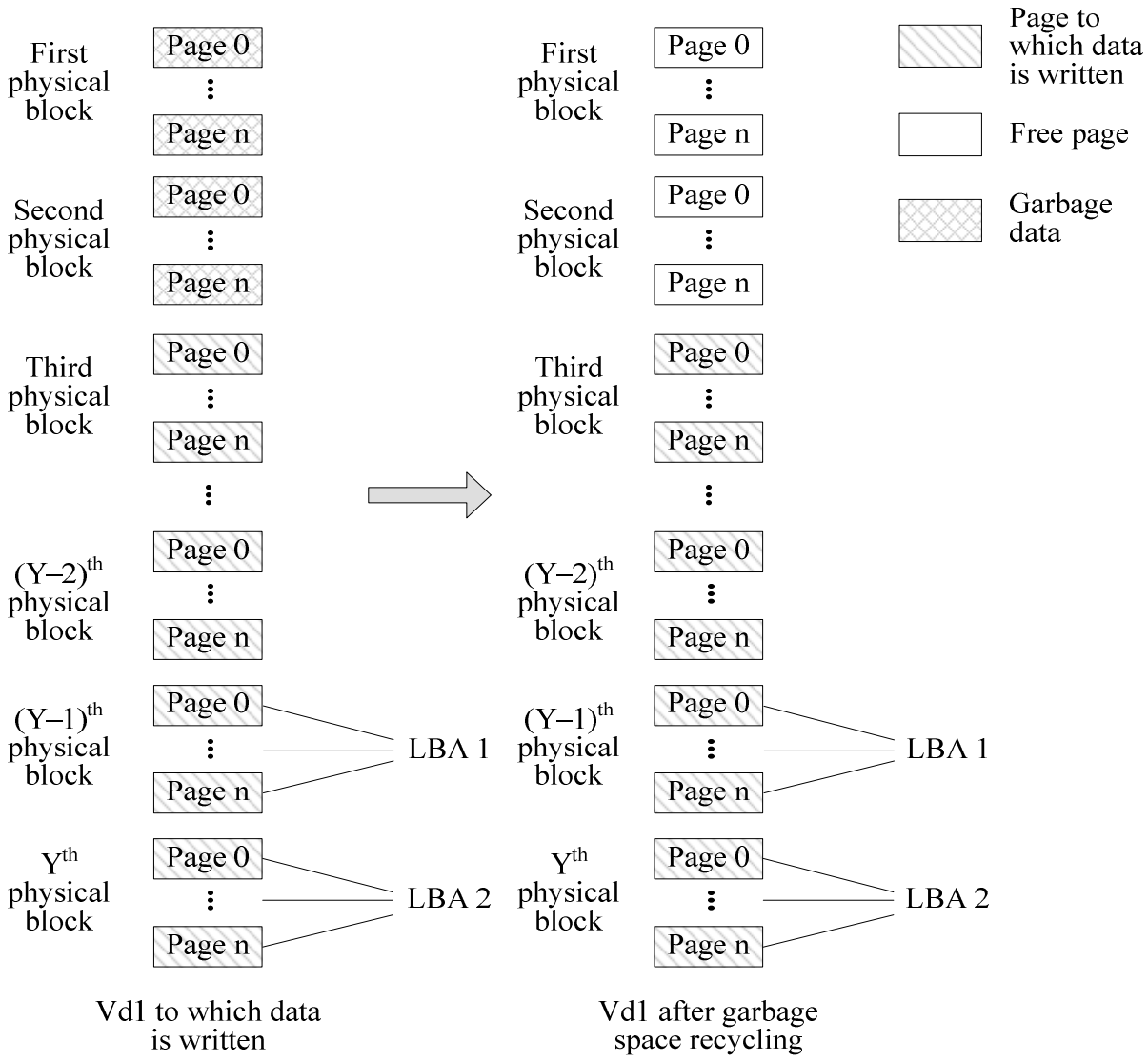
First physical block
Second physical block
Third physical block
(Y−2)th physical block
(Y−1)th physical block
Yth physical block
Page 0
Page n
LBA 1
LBA 2
Page to which data is written
Free page
Garbage data
Vd1 to which data is written
Vd1 after garbage space recycling

FIG. 5

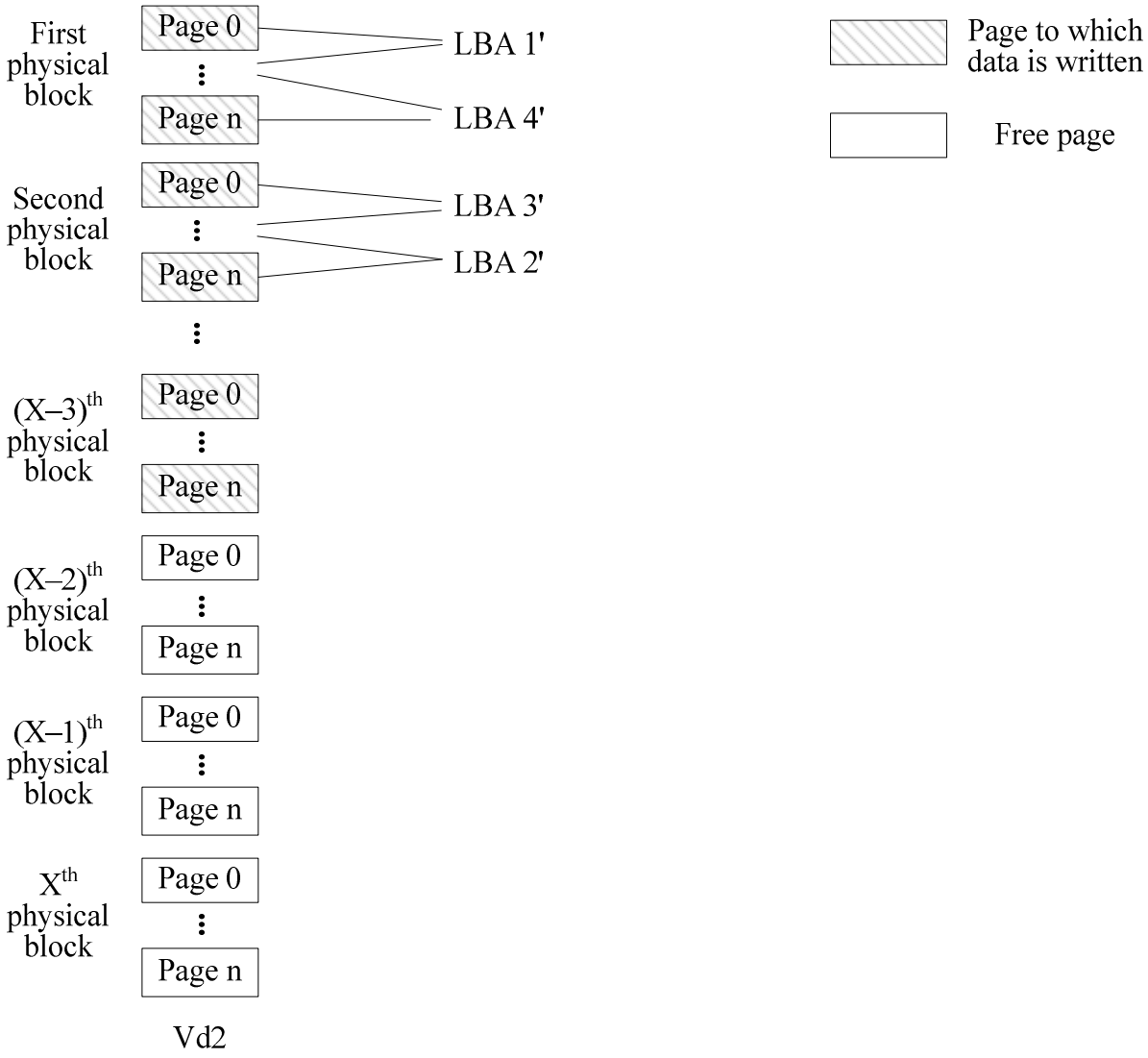
First physical block
Page 0
Page n
LBA 1'
LBA 4'
Second physical block
Page 0
Page n
LBA 3'
LBA 2'
(X–3)th physical block
Page 0
Page n
(X–2)th physical block
Page 0
Page n
(X–1)th physical block
Page 0
Page n
Xth physical block
Page 0
Page n
Vd2
Page to which data is written
Free page

FIG. 6

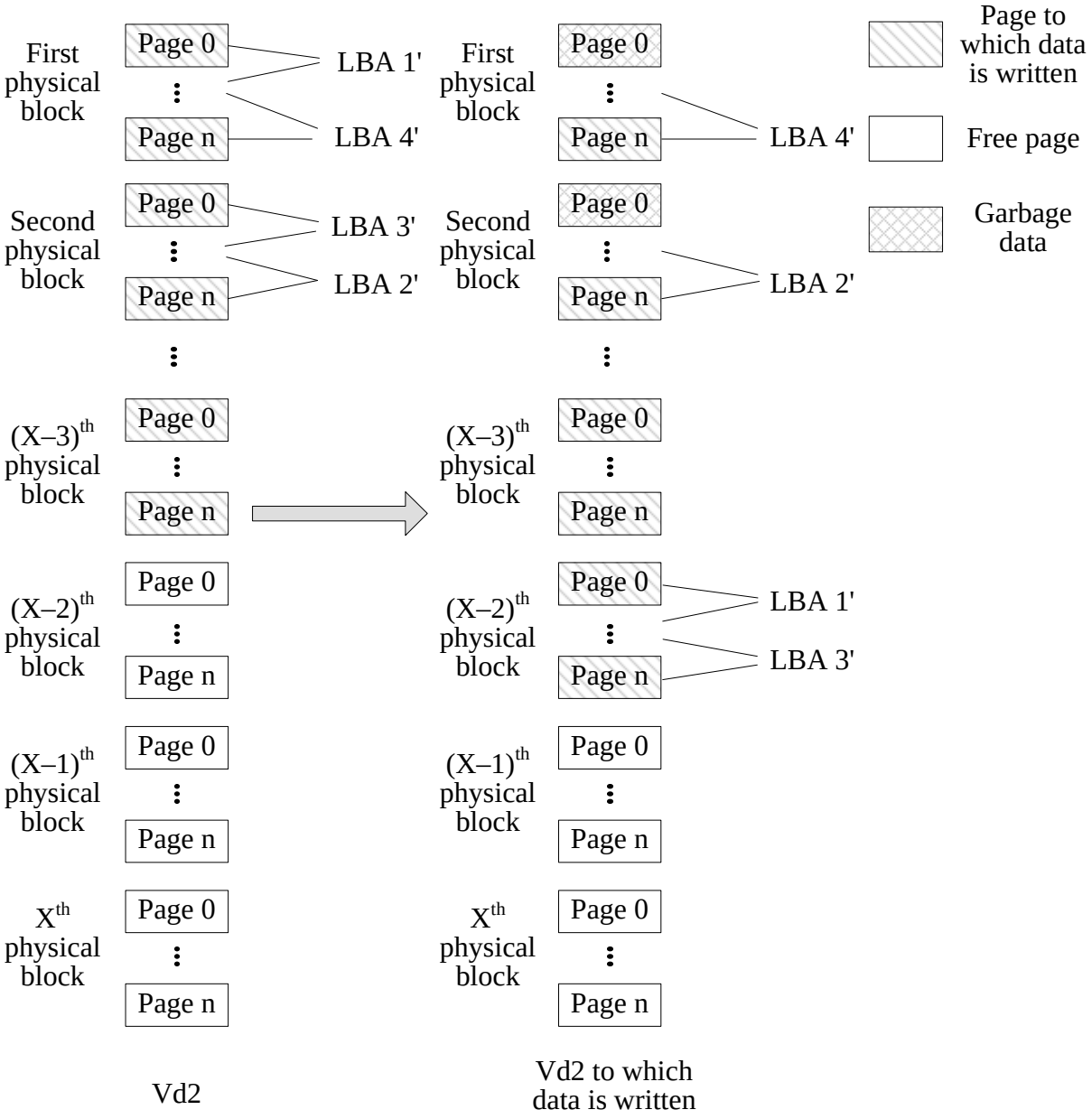
First physical block
Page 0
Page n
LBA 1'
LBA 4'
Second physical block
LBA 3'
LBA 2'
(X–3)th physical block
(X–2)th physical block
(X–1)th physical block
Xth physical block
Vd2
Vd2 to which data is written
Page to which data is written
Free page
Garbage data

FIG. 7

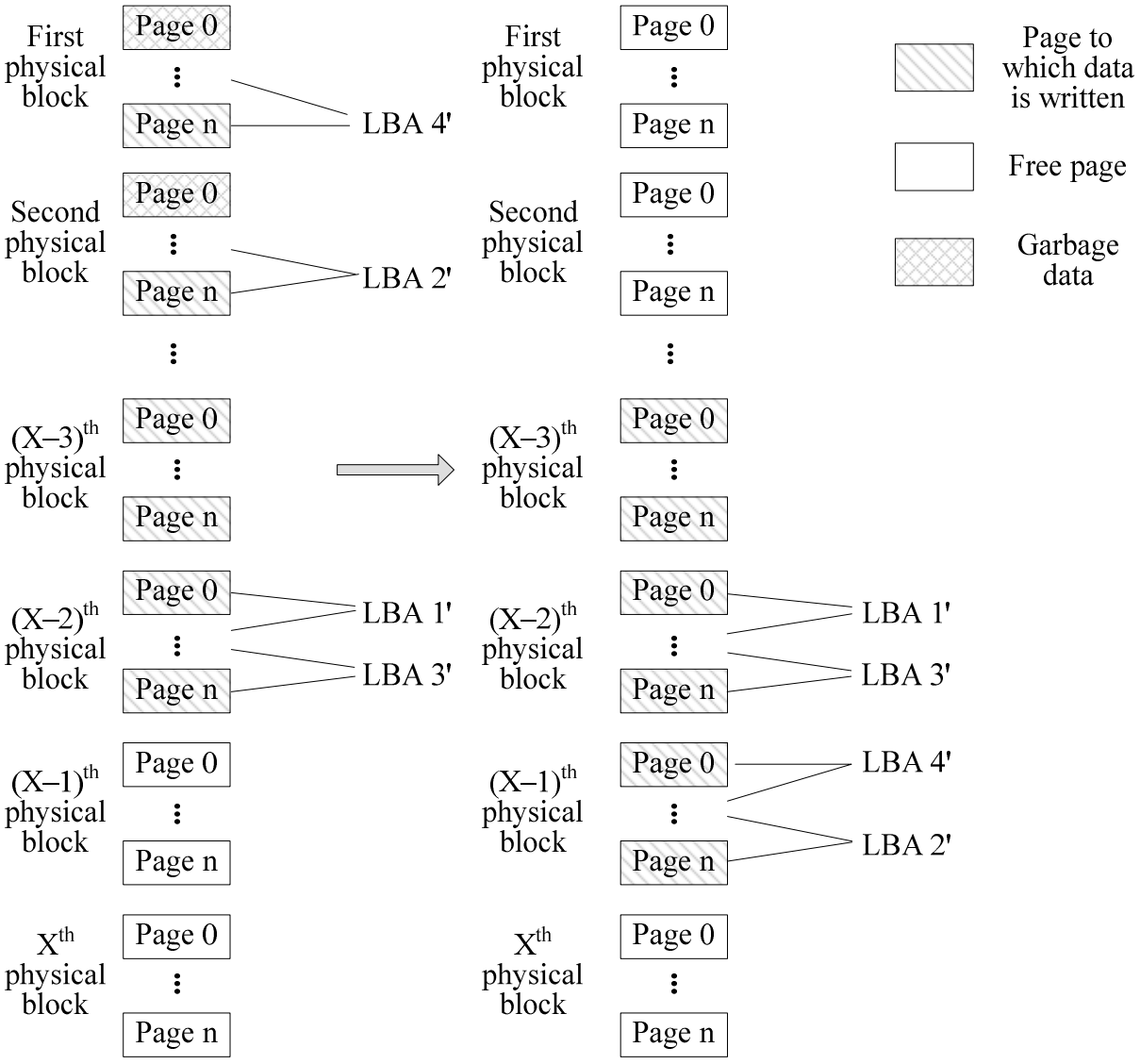
First physical block
Page 0
Page n
LBA 4'
Second physical block
Page 0
Page n
LBA 2'
(X–3)th physical block
Page 0
Page n
(X–2)th physical block
Page 0
Page n
LBA 1'
LBA 3'
(X–1)th physical block
Page 0
Page n
Xth physical block
Page 0
Page n
Vd2 to which data is written
First physical block
Page 0
Page n
Second physical block
Page 0
Page n
(X–3)th physical block
Page 0
Page n
(X–2)th physical block
Page 0
Page n
LBA 1'
LBA 3'
(X–1)th physical block
Page 0
Page n
LBA 4'
LBA 2'
Xth physical block
Page 0
Page n
Vd2 after garbage space recycling
Page to which data is written
Free page
Garbage data

FIG. 8

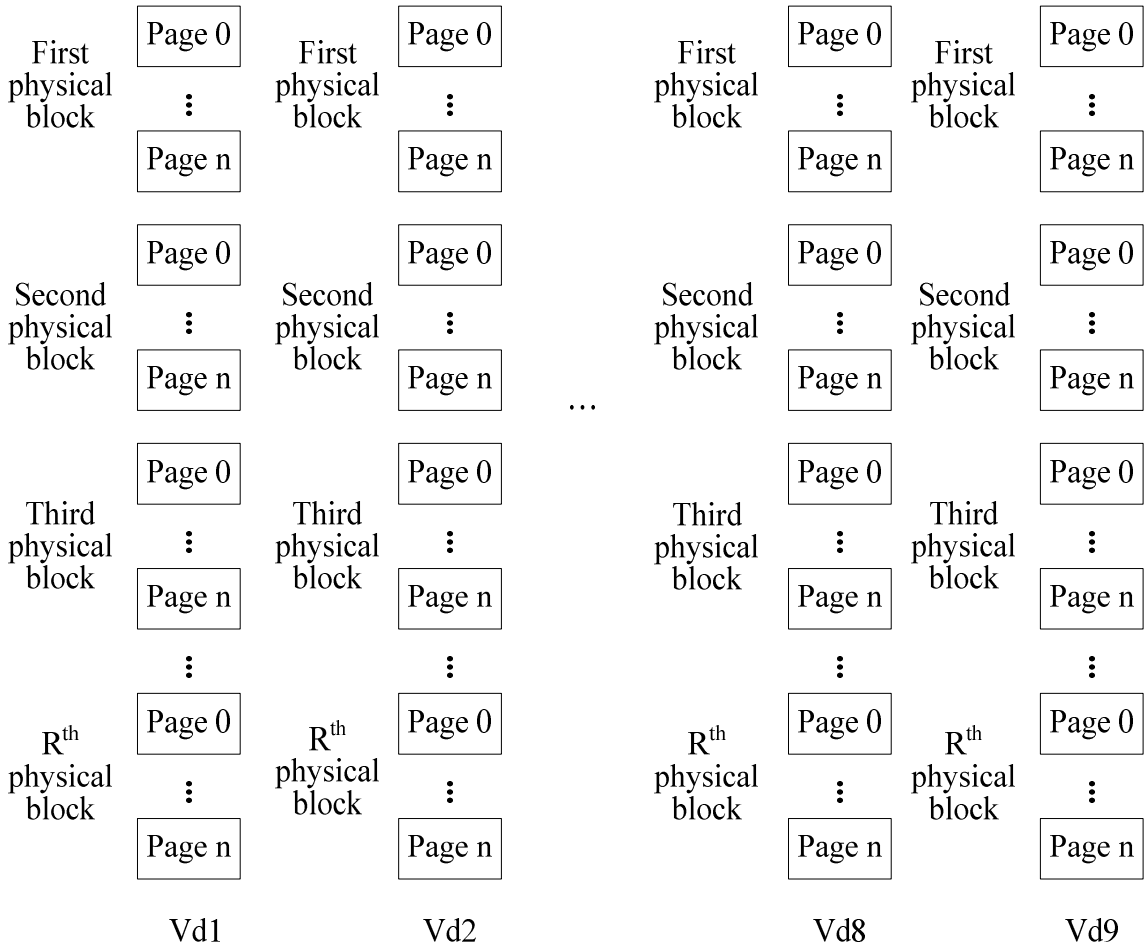
First physical block
Second physical block
Third physical block
Rth physical block
Page 0
Page n
Vd1
Vd2
Vd8
Vd9

FIG. 9

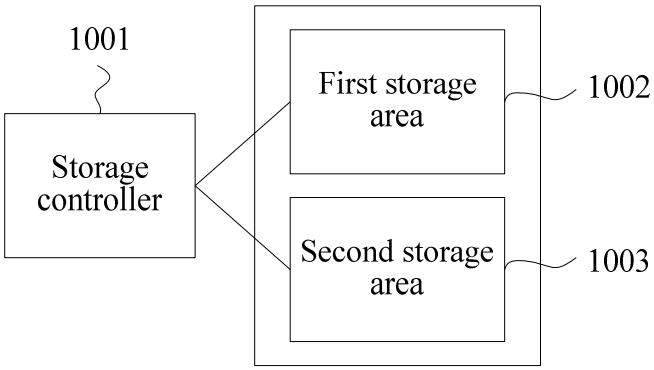
1001
Storage controller
First storage area
Second storage area
1002
1003

FIG. 10

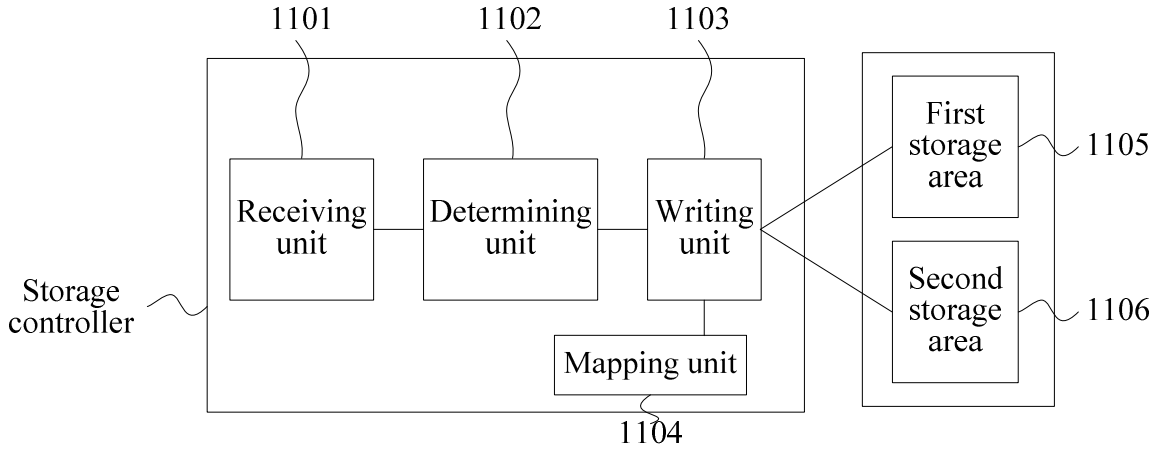
1101
1102
1103
Receiving unit
Determining unit
Writing unit
Mapping unit
1104
Storage controller
First storage area
1105
Second storage area
1106

FIG. 11