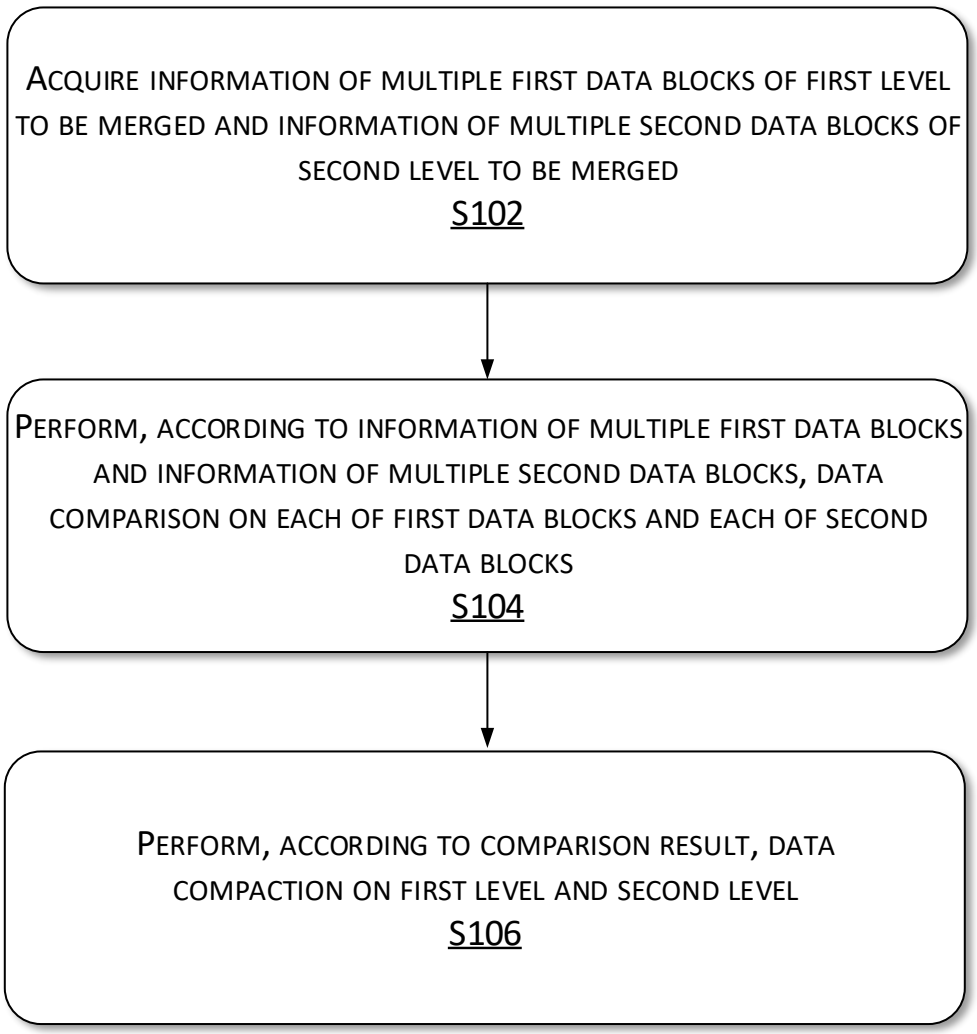
ACQUIRE INFORMATION OF MULTIPLE FIRST DATA BLOCKS OF FIRST LEVEL TO BE MERGED AND INFORMATION OF MULTIPLE SECOND DATA BLOCKS OF SECOND LEVEL TO BE MERGED
S102
PERFORM, ACCORDING TO INFORMATION OF MULTIPLE FIRST DATA BLOCKS AND INFORMATION OF MULTIPLE SECOND DATA BLOCKS, DATA COMPARISON ON EACH OF FIRST DATA BLOCKS AND EACH OF SECOND DATA BLOCKS
S104
PERFORM, ACCORDING TO COMPARISON RESULT, DATA COMPACTION ON FIRST LEVEL AND SECOND LEVEL
S106

FIG. 1

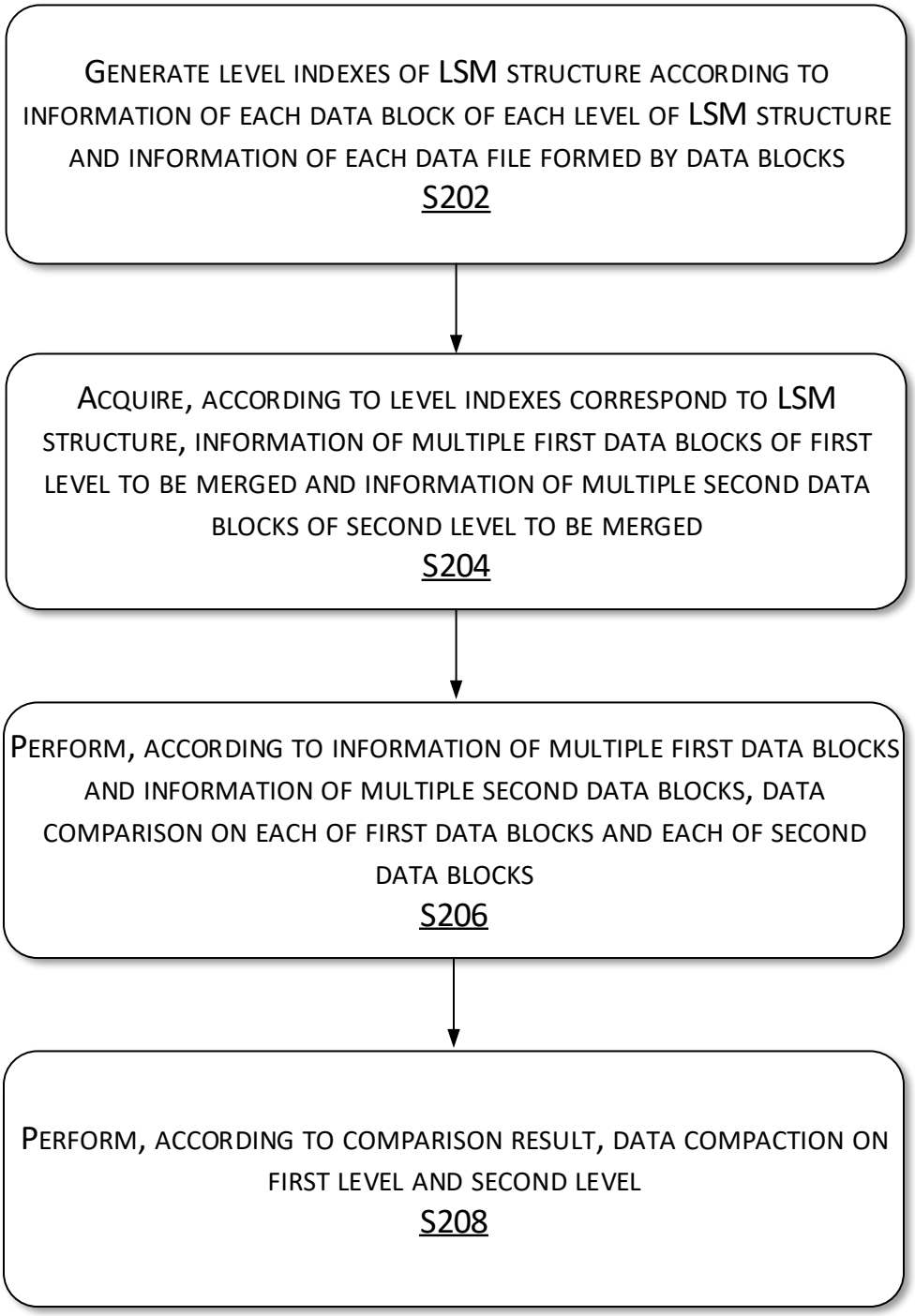
GENERATE LEVEL INDEXES OF LSM STRUCTURE ACCORDING TO INFORMATION OF EACH DATA BLOCK OF EACH LEVEL OF LSM STRUCTURE AND INFORMATION OF EACH DATA FILE FORMED BY DATA BLOCKS
S202
ACQUIRE, ACCORDING TO LEVEL INDEXES CORRESPOND TO LSM STRUCTURE, INFORMATION OF MULTIPLE FIRST DATA BLOCKS OF FIRST LEVEL TO BE MERGED AND INFORMATION OF MULTIPLE SECOND DATA BLOCKS OF SECOND LEVEL TO BE MERGED
S204
PERFORM, ACCORDING TO INFORMATION OF MULTIPLE FIRST DATA BLOCKS AND INFORMATION OF MULTIPLE SECOND DATA BLOCKS, DATA COMPARISON ON EACH OF FIRST DATA BLOCKS AND EACH OF SECOND DATA BLOCKS
S206
PERFORM, ACCORDING TO COMPARISON RESULT, DATA COMPACTION ON FIRST LEVEL AND SECOND LEVEL
S208

FIG. 2

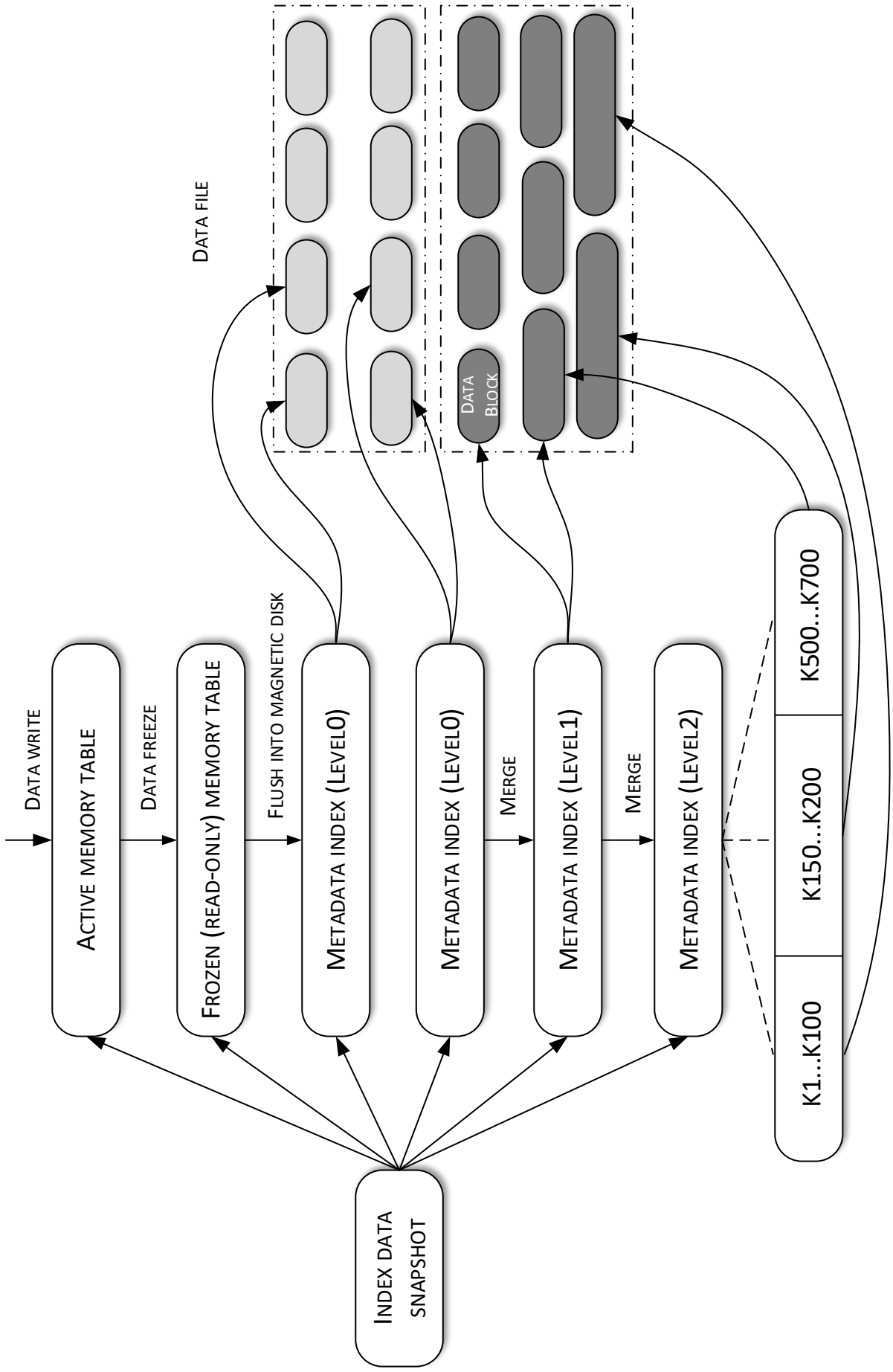
DATA WRITE
ACTIVE MEMORY TABLE
DATA FREEZE
FROZEN (READ-ONLY) MEMORY TABLE
FLUSH INTO MAGNETIC DISK
METADATA INDEX (LEVEL0)
METADATA INDEX (LEVEL0)
MERGE
METADATA INDEX (LEVEL1)
MERGE
METADATA INDEX (LEVEL2)
INDEX DATA SNAPSHOT
K1...K100
K150...K200
K500...K700
DATA FILE
DATA BLOCK

FIG. 3

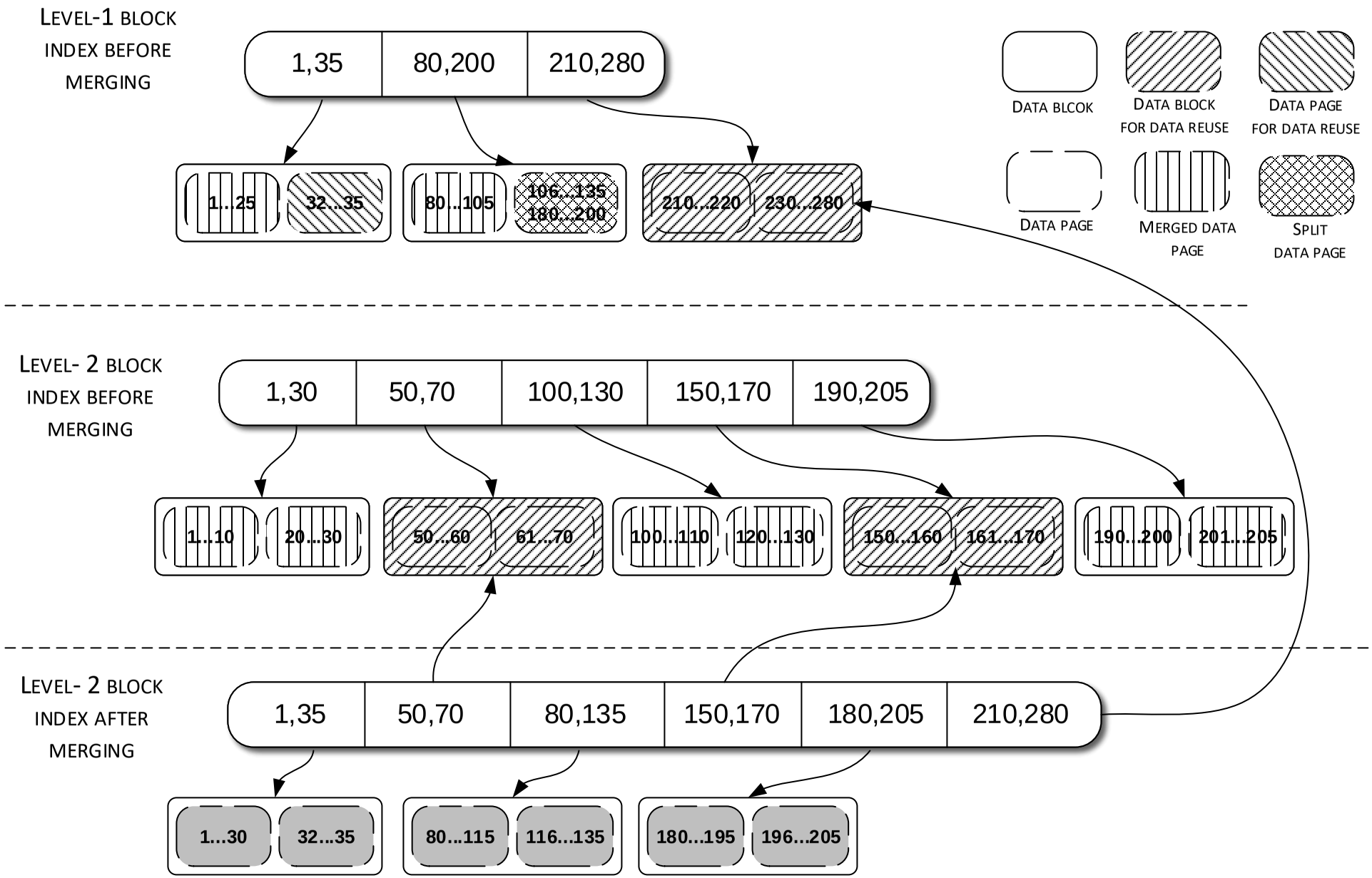
LEVEL-1 BLOCK INDEX BEFORE MERGING
1,35
80,200
210,280
1...25
32...35
80...105
106...135
180...200
210...220
230...280
DATA BLCOK
DATA BLOCK FOR DATA REUSE
DATA PAGE FOR DATA REUSE
DATA PAGE
MERGED DATA PAGE
SPLIT DATA PAGE
LEVEL- 2 BLOCK INDEX BEFORE MERGING
1,30
50,70
100,130
150,170
190,205
1...10
20...30
50...60
61...70
100...110
120...130
150...160
161...170
190...200
201...205
LEVEL- 2 BLOCK INDEX AFTER MERGING
1,35
50,70
80,135
150,170
180,205
210,280
1...30
32...35
80...115
116...135
180...195
196...205

FIG. 4

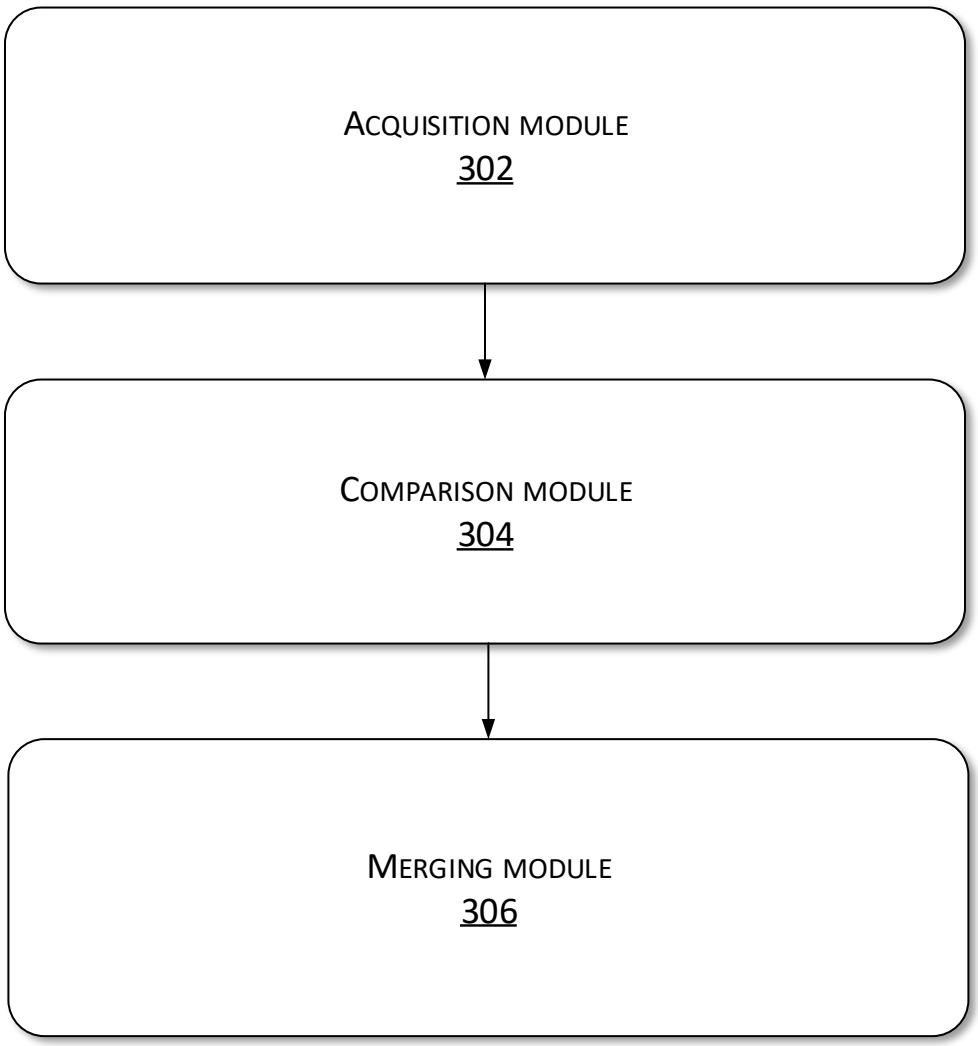
ACQUISITION MODULE
302
COMPARISON MODULE
304
MERGING MODULE
306

FIG. 5

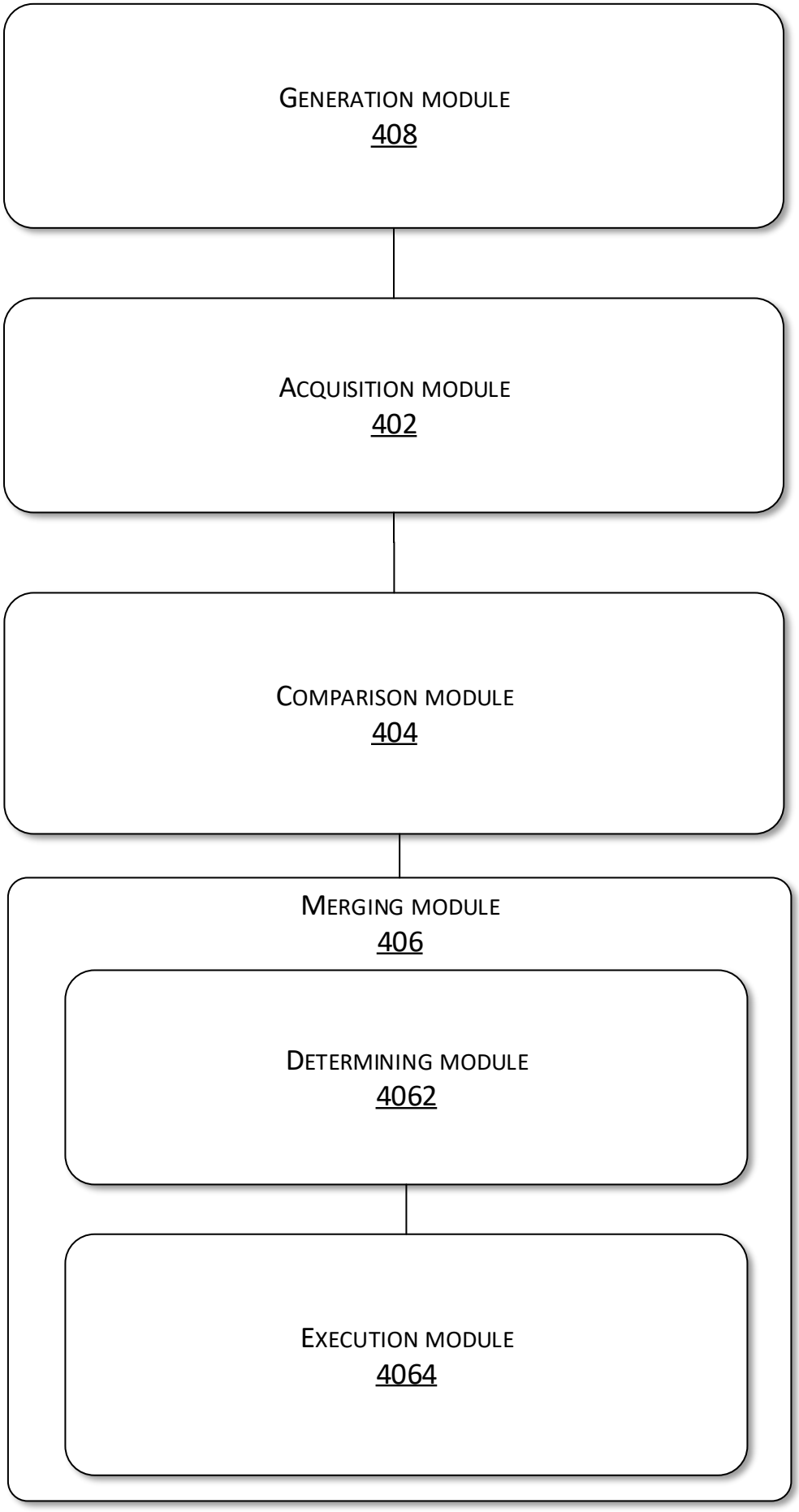
GENERATION MODULE
408
ACQUISITION MODULE
402
COMPARISON MODULE
404
MERGING MODULE
406
DETERMINING MODULE
4062
EXECUTION MODULE
4064

FIG. 6

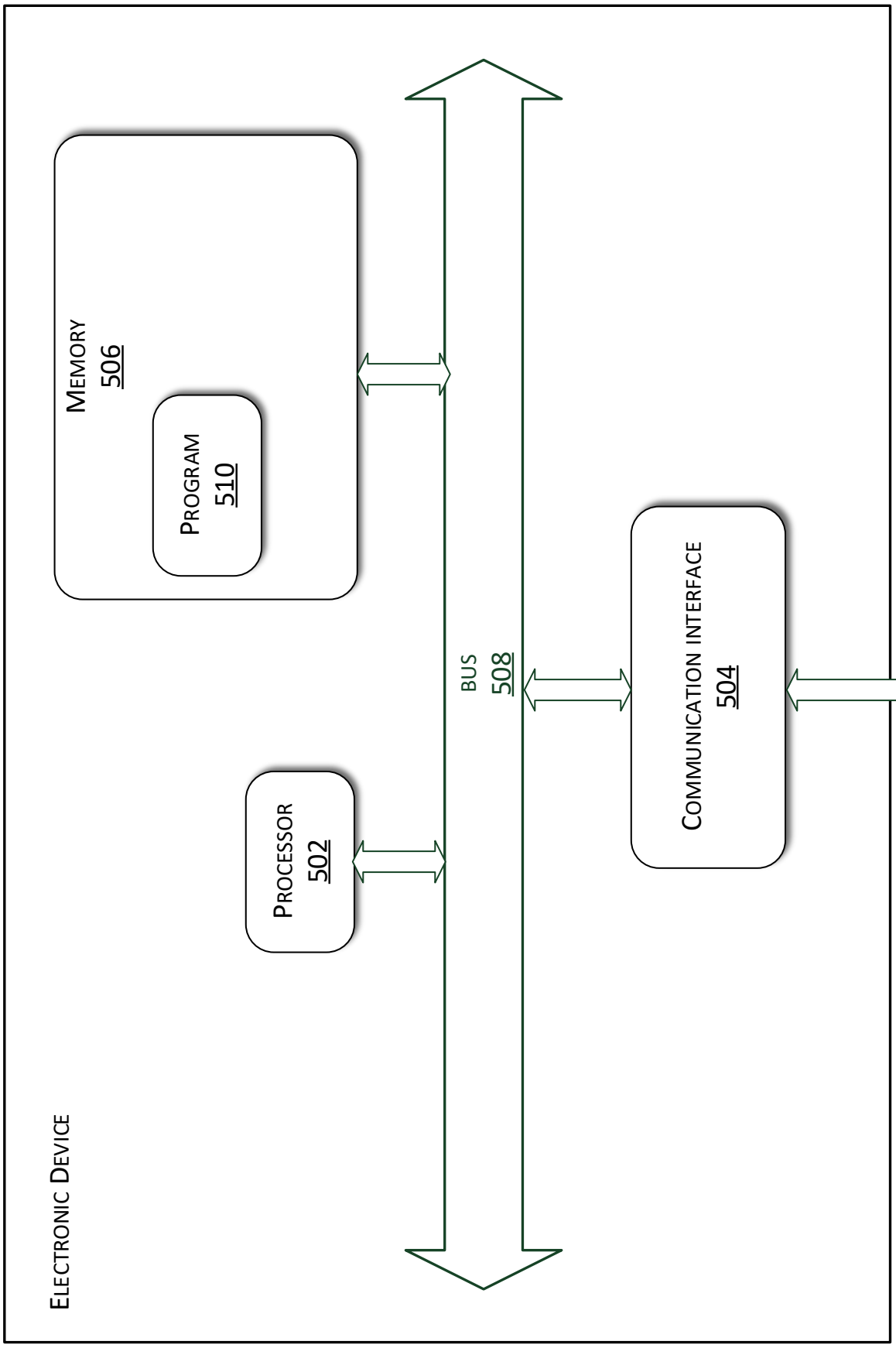
ELECTRONIC DEVICE
MEMORY
506
PROGRAM
510
PROCESSOR
502
BUS
508
COMMUNICATION INTERFACE
504

FIG. 7