FIG.1

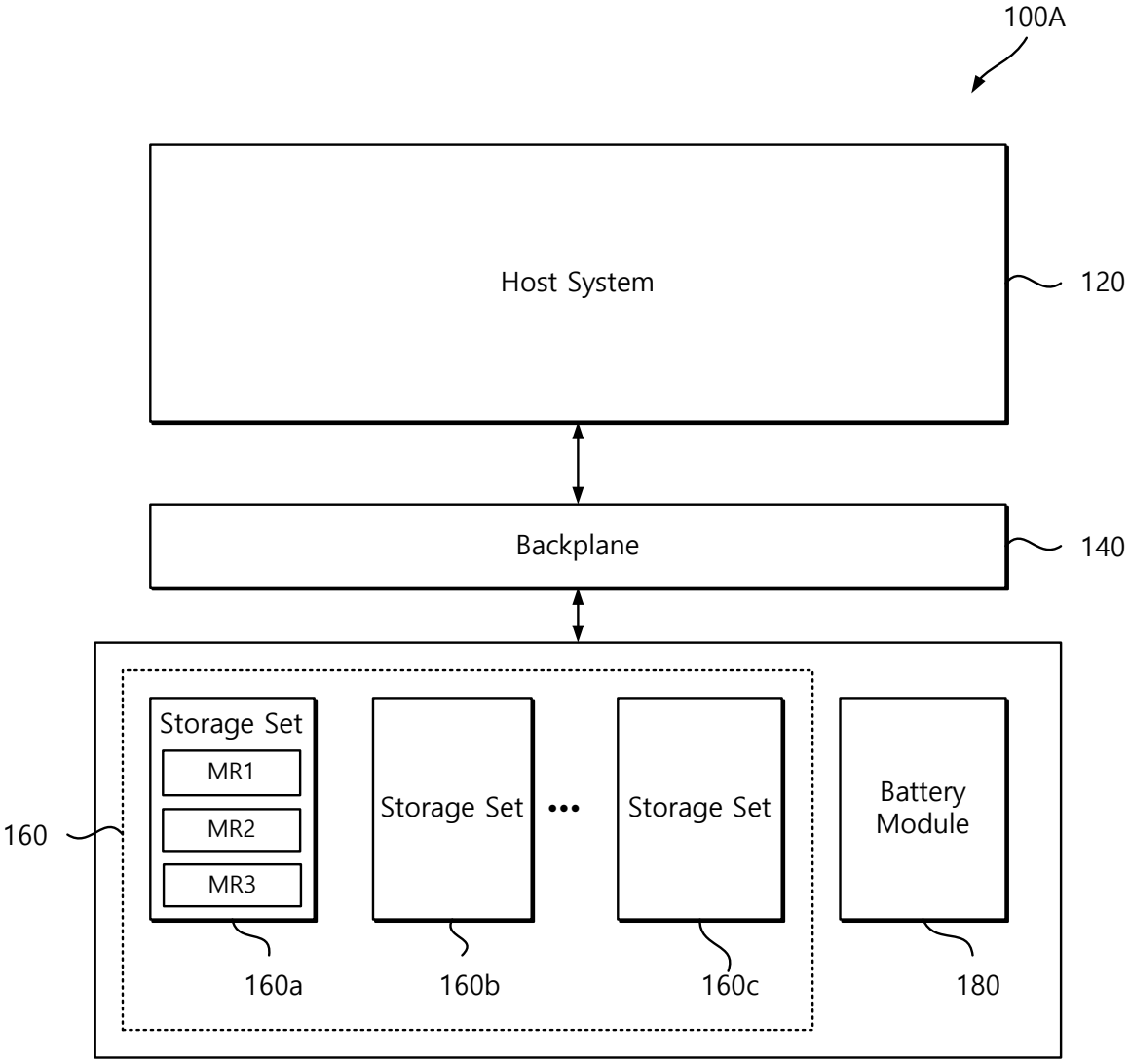

100A
Host System
120
Backplane
140
Storage Set
MR1
MR2
MR3
Storage Set
Storage Set
Battery Module
160
160a
160b
160c
180

FIG.2

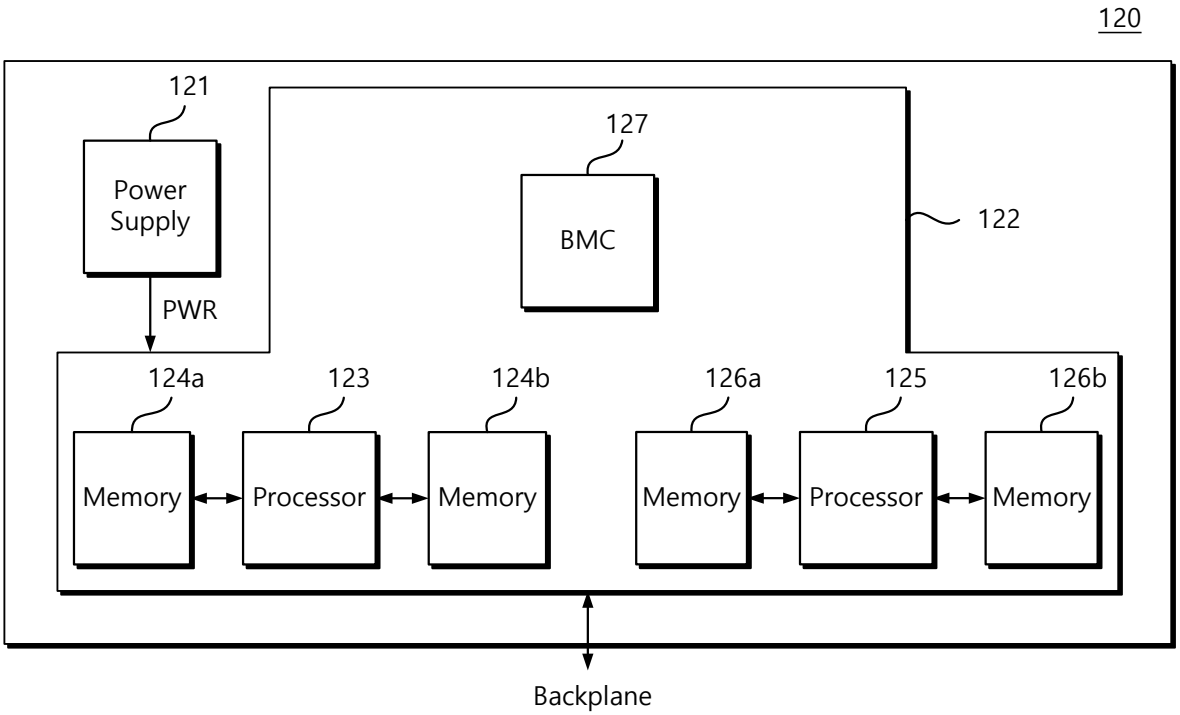

120
121
Power Supply
PWR
127
BMC
122
124a
123
124b
126a
125
126b
Memory
Processor
Memory
Memory
Processor
Memory
Backplane

FIG.3

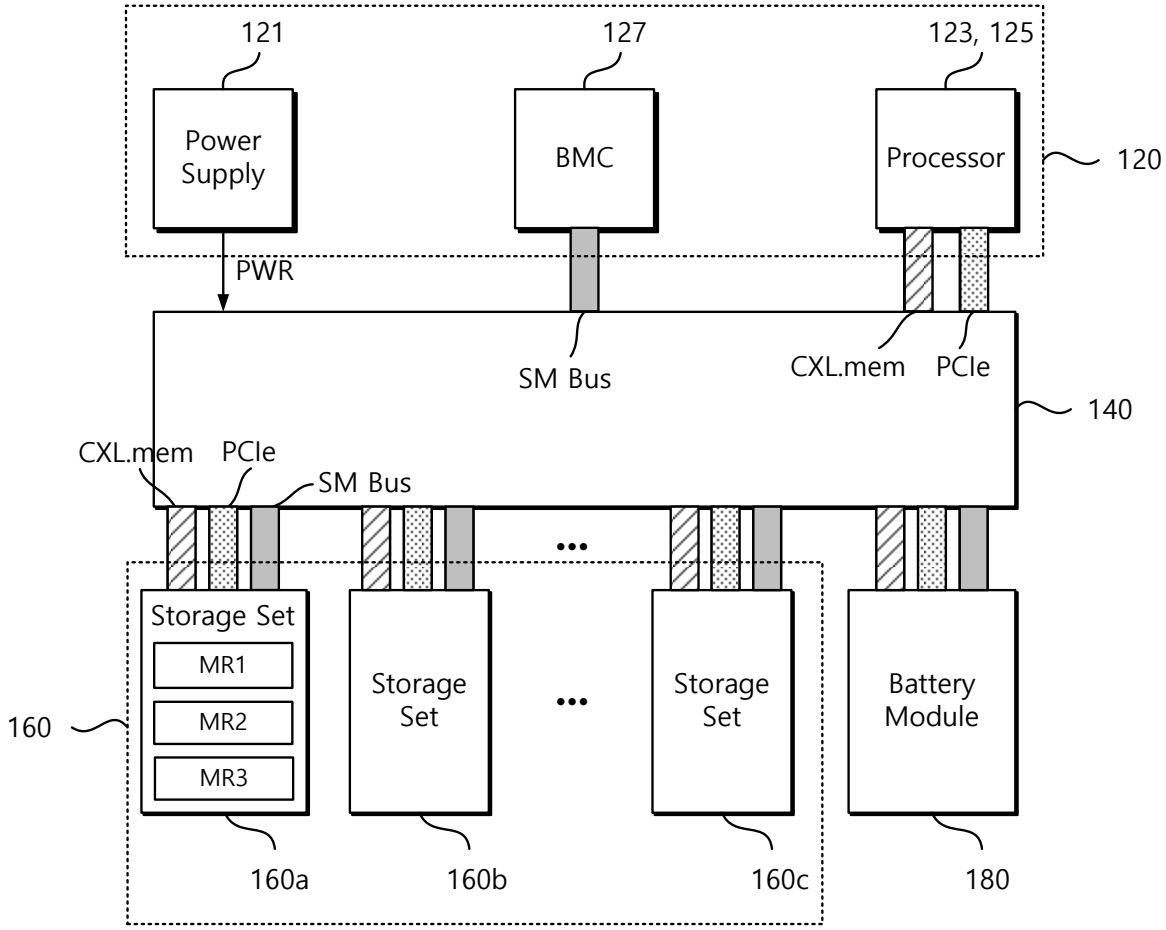

121
127
123, 125
Power Supply
BMC
Processor
120
PWR
SM Bus
CXL.mem
PCIe
140
CXL.mem
PCIe
SM Bus
Storage Set
MR1
MR2
MR3
Storage Set
Storage Set
Battery Module
160
160a
160b
160c
180

FIG.4

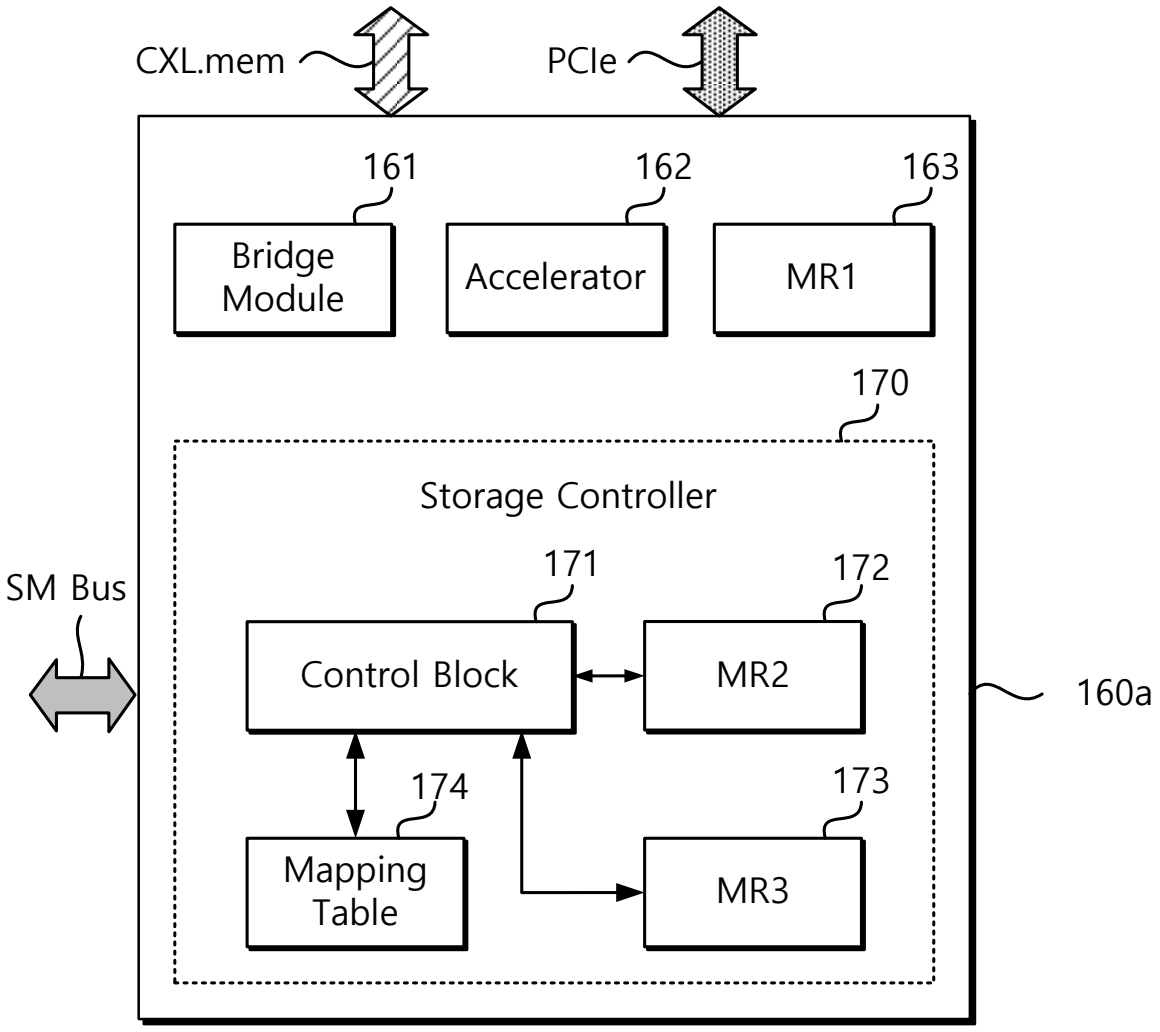

CXL.mem
PCIe
161
162
163
Bridge Module
Accelerator
MR1
170
Storage Controller
171
172
SM Bus
Control Block
MR2
160a
174
173
Mapping Table
MR3

FIG.5

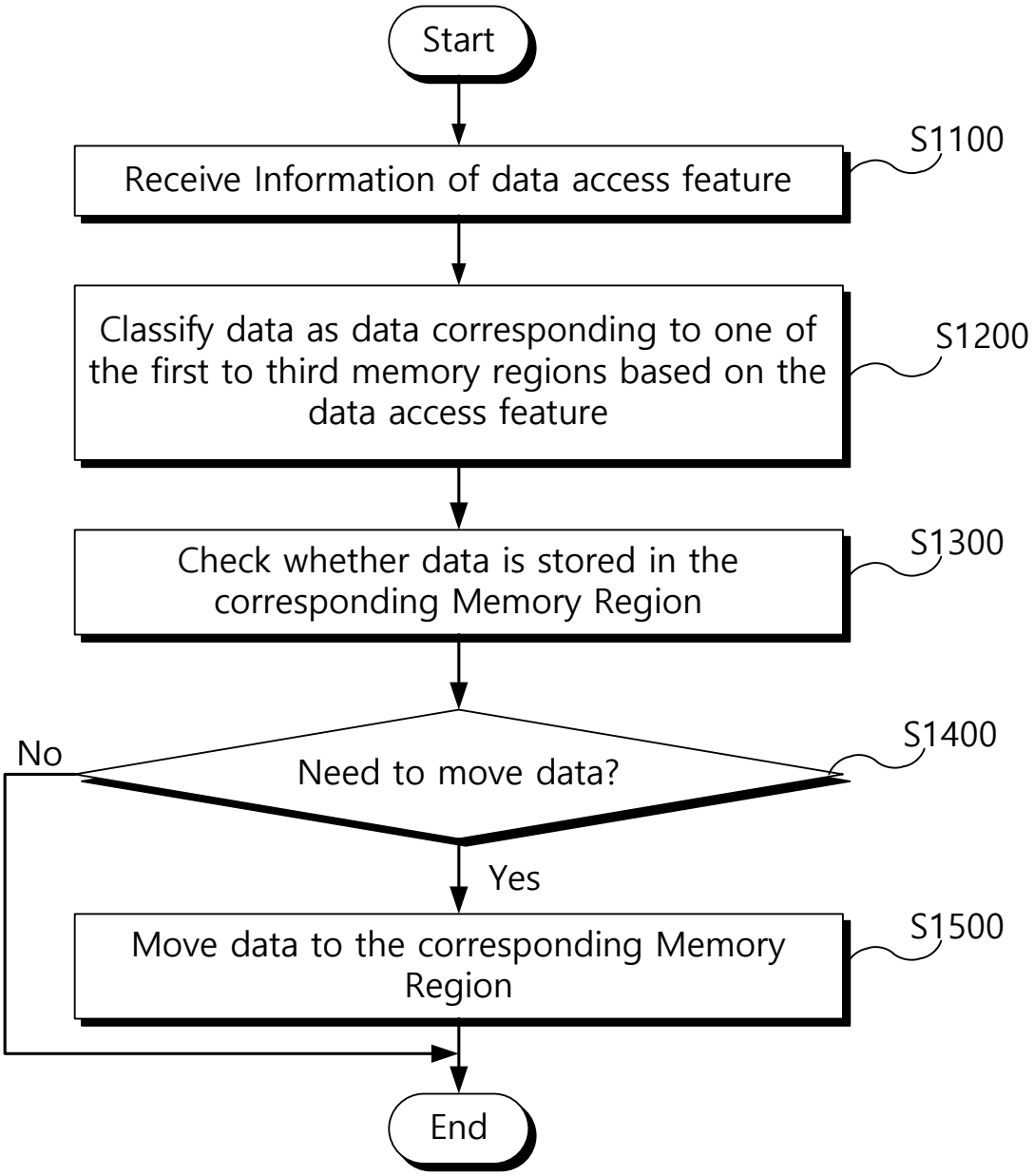

Start
Receive Information of data access feature
S1100
Classify data as data corresponding to one of the first to third memory regions based on the data access feature
S1200
Check whether data is stored in the corresponding Memory Region
S1300
Need to move data?
S1400
No
Yes
Move data to the corresponding Memory Region
S1500
End

FIG.6

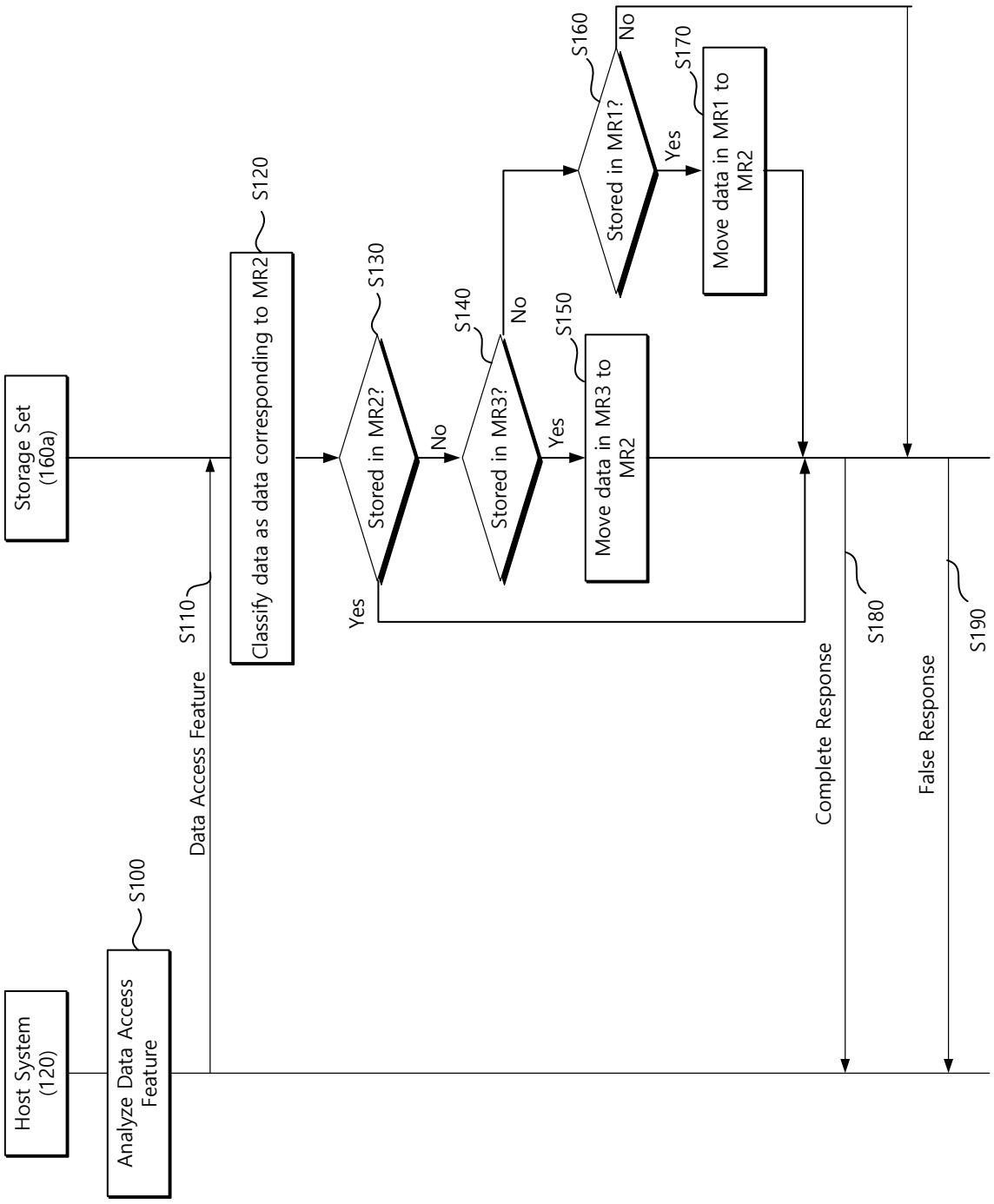

Host System (120)
Storage Set (160a)
Analyze Data Access Feature
S100
Data Access Feature
S110
Classify data as data corresponding to MR2
S120
Stored in MR2?
S130
No
Yes
Stored in MR3?
S140
No
Yes
Move data in MR3 to MR2
S150
Stored in MR1?
S160
No
Yes
Move data in MR1 to MR2
S170
Complete Response
S180
False Response
S190

FIG.7

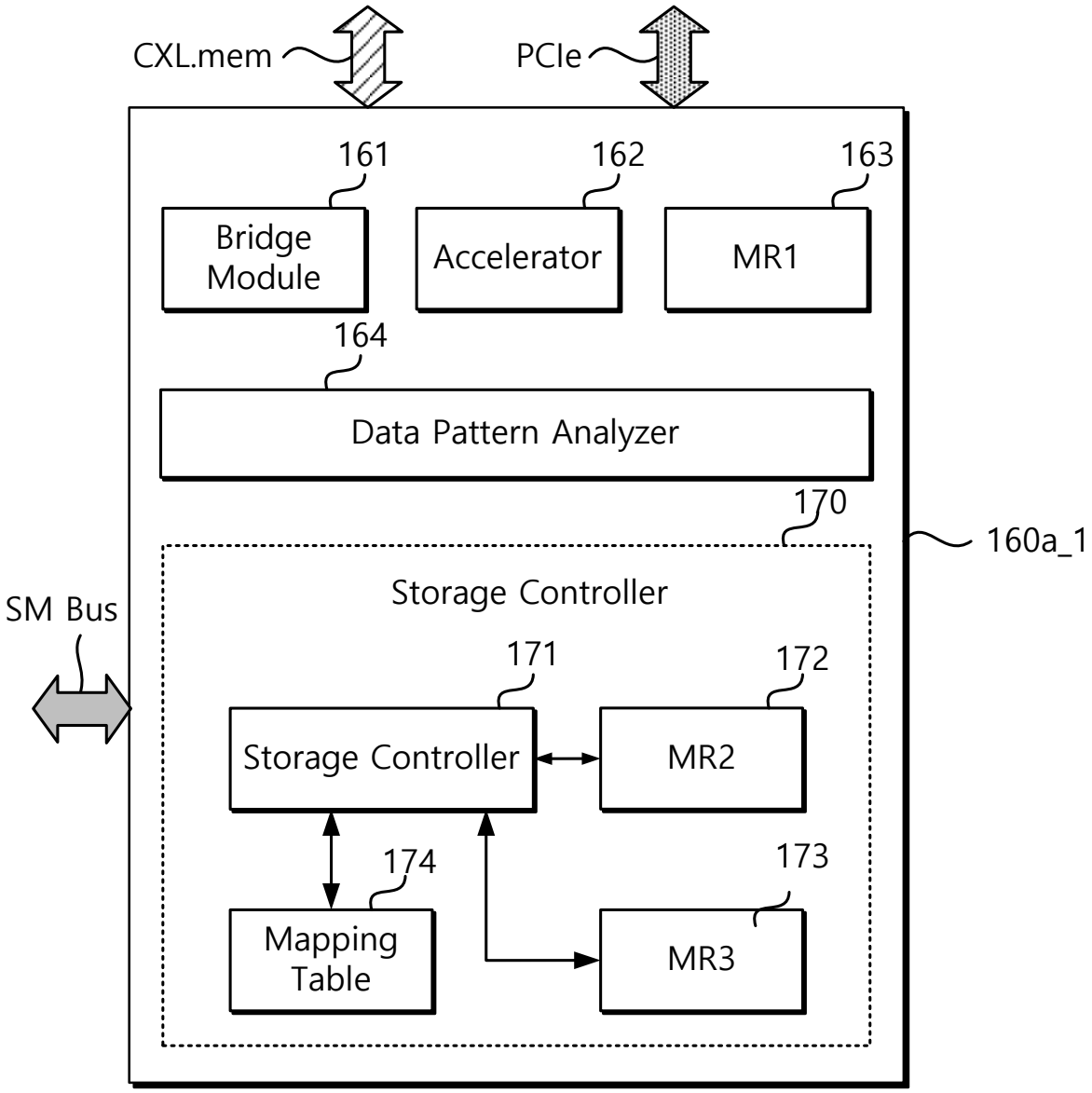

CXL.mem
PCIe
161
162
163
Bridge Module
Accelerator
MR1
164
Data Pattern Analyzer
170
160a_1
Storage Controller
SM Bus
171
172
Storage Controller
MR2
174
173
Mapping Table
MR3

FIG.8

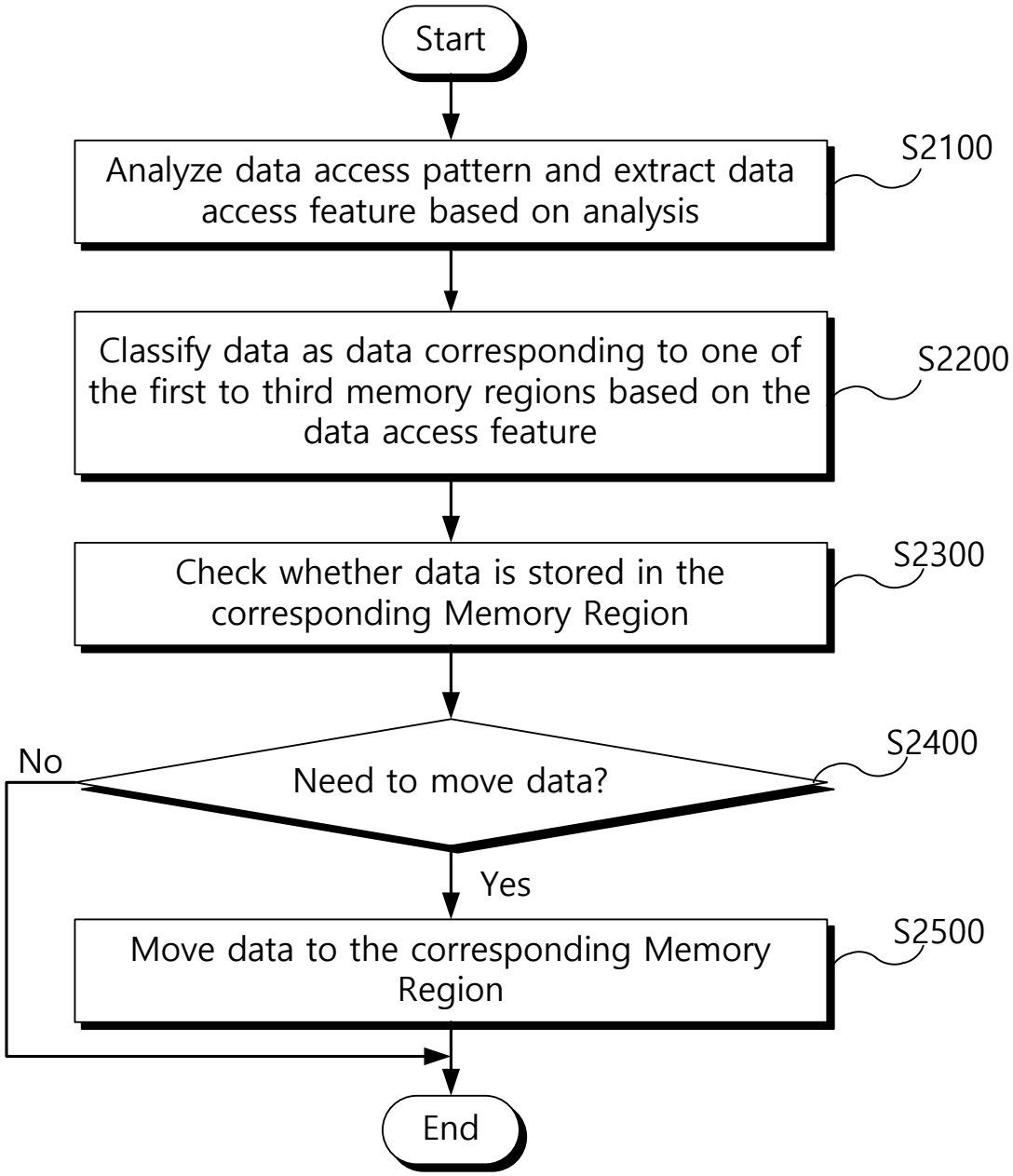

Start
Analyze data access pattern and extract data access feature based on analysis
S2100
Classify data as data corresponding to one of the first to third memory regions based on the data access feature
S2200
Check whether data is stored in the corresponding Memory Region
S2300
Need to move data?
S2400
No
Yes
Move data to the corresponding Memory Region
S2500
End

FIG.9

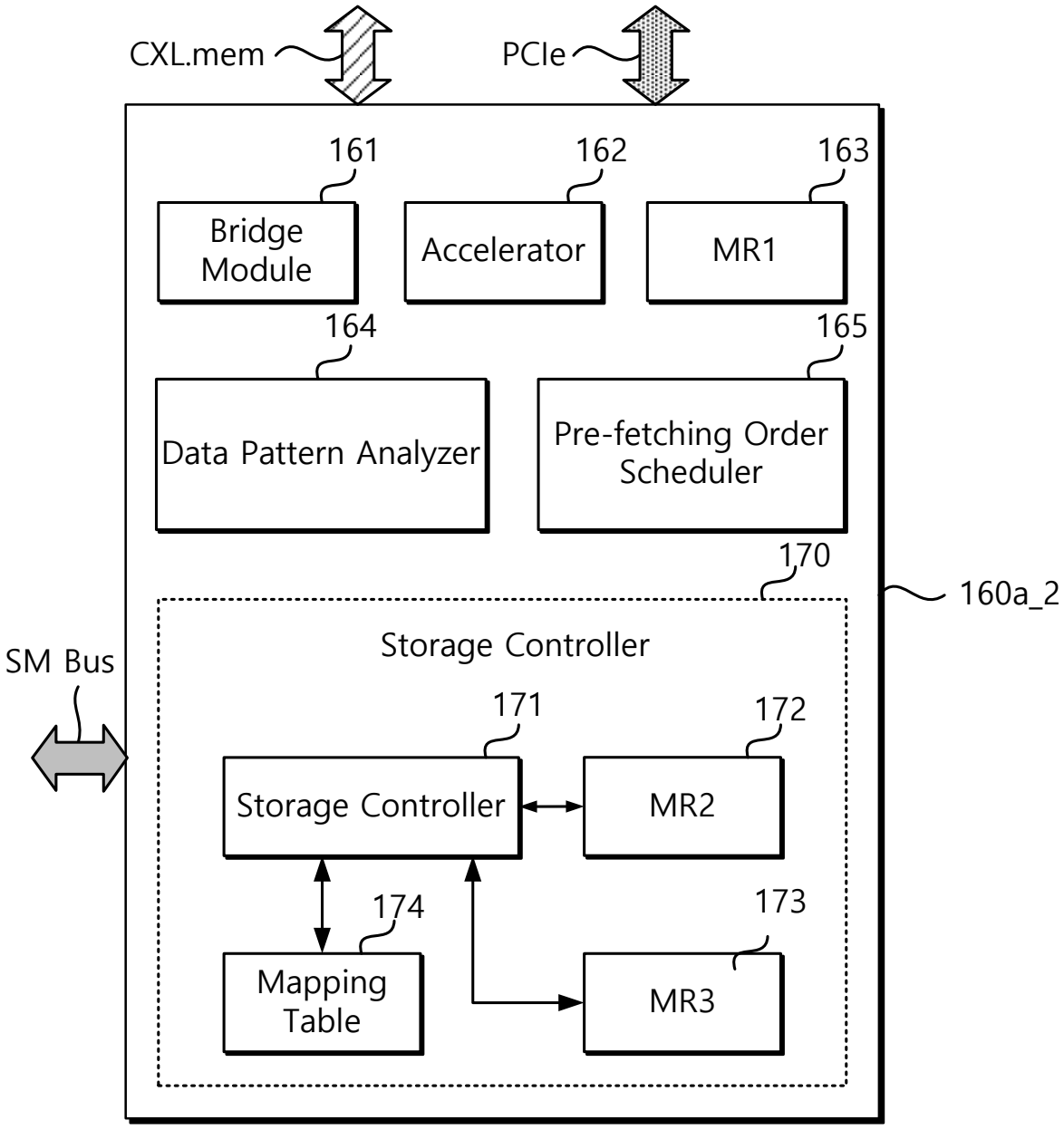

CXL.mem
PCIe
161
Bridge Module
162
Accelerator
163
MR1
164
Data Pattern Analyzer
165
Pre-fetching Order Scheduler
170
160a_2
Storage Controller
SM Bus
171
Storage Controller
172
MR2
174
Mapping Table
173
MR3

FIG.10

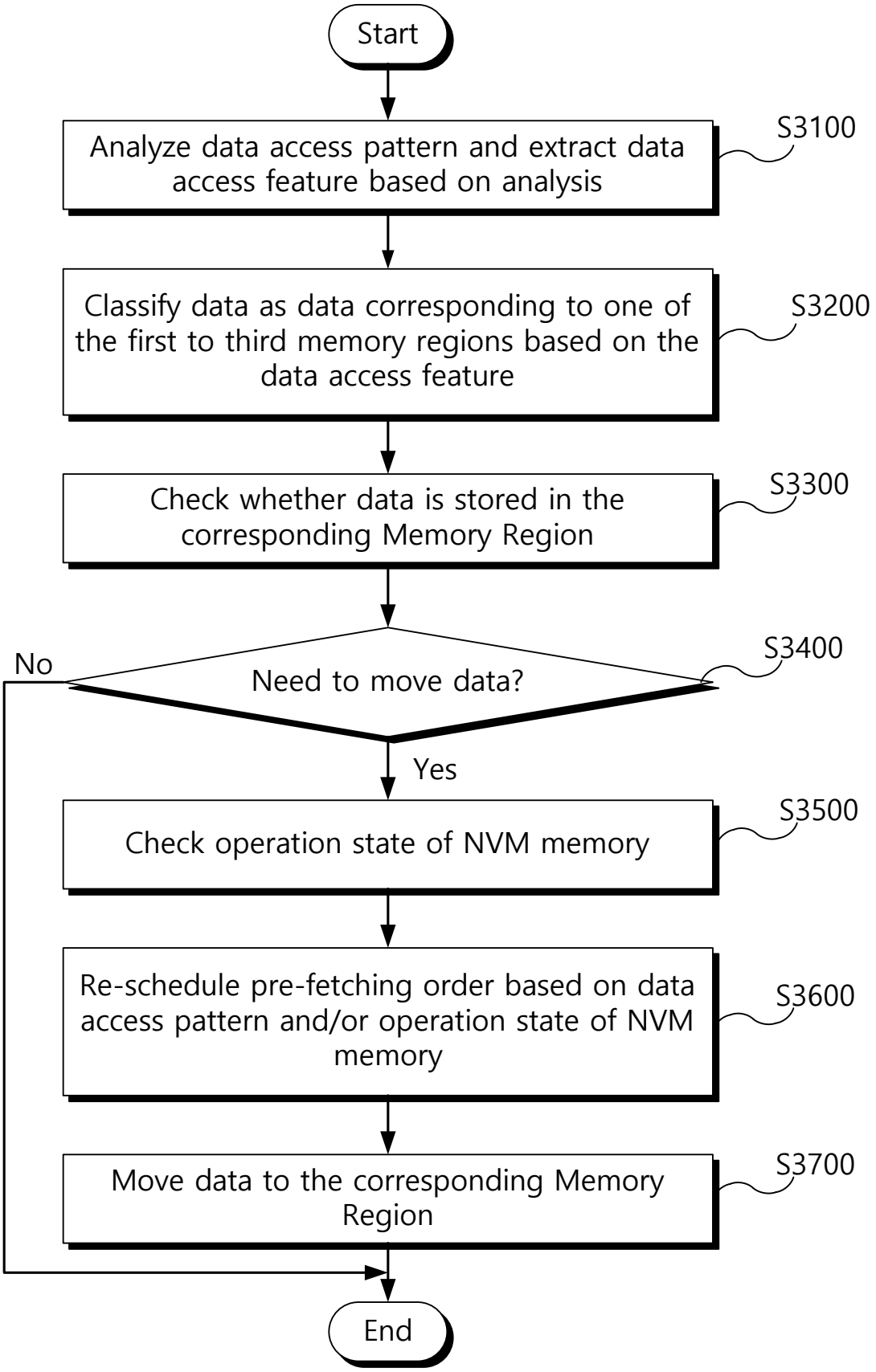

Start
Analyze data access pattern and extract data access feature based on analysis
S3100
Classify data as data corresponding to one of the first to third memory regions based on the data access feature
S3200
Check whether data is stored in the corresponding Memory Region
S3300
Need to move data?
S3400
No
Yes
Check operation state of NVM memory
S3500
Re-schedule pre-fetching order based on data access pattern and/or operation state of NVM memory
S3600
Move data to the corresponding Memory Region
S3700
End

FIG.11

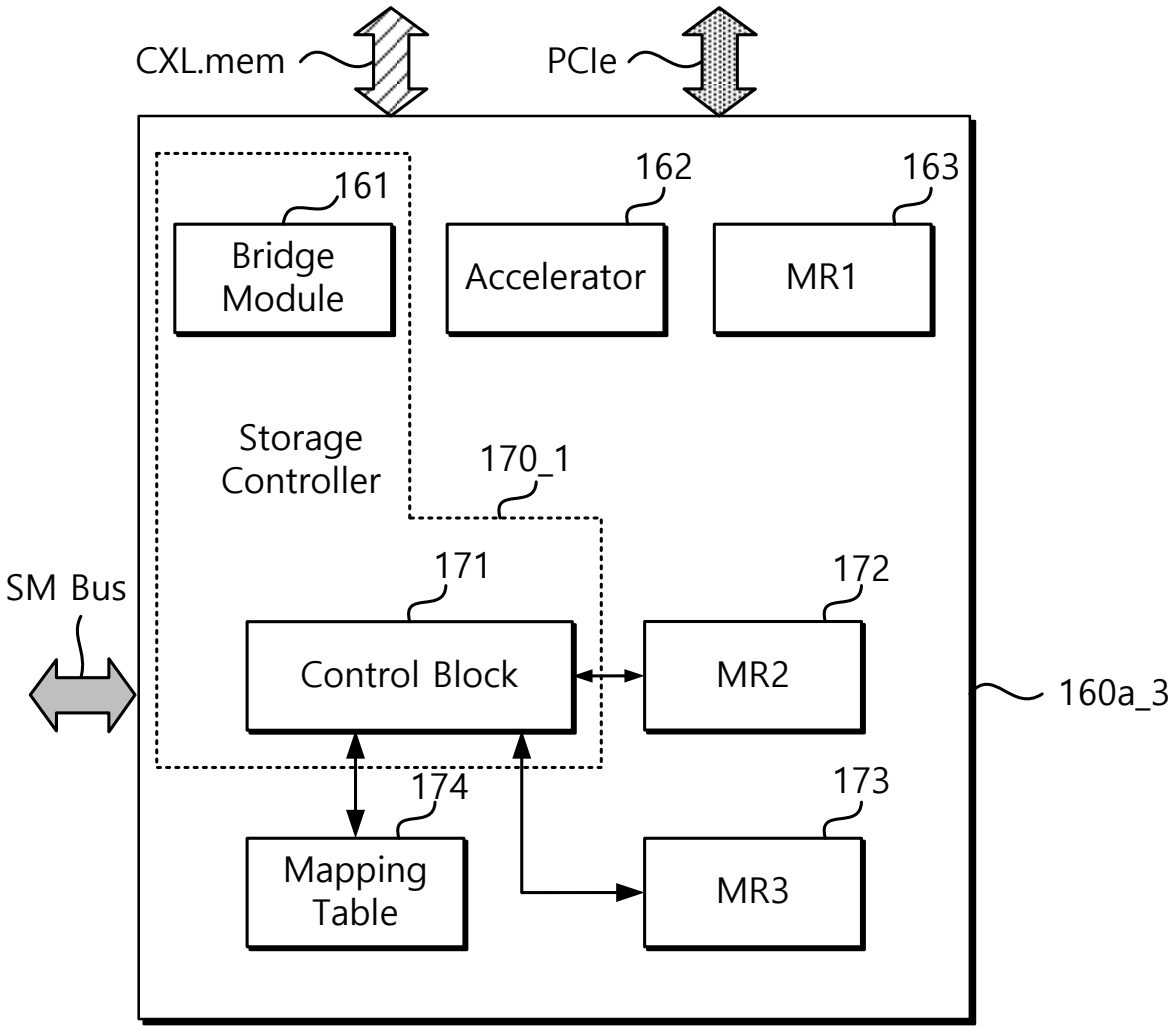
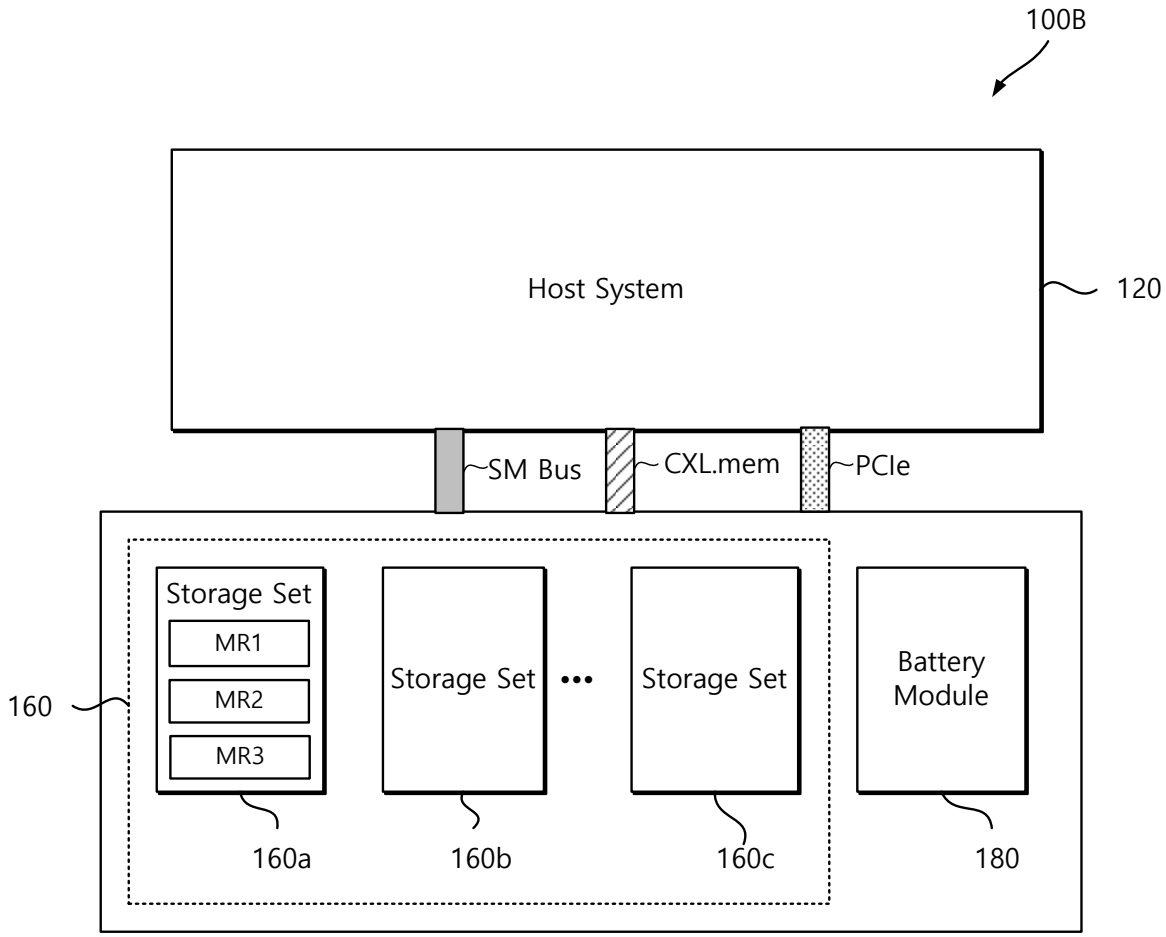

CXL.mem
PCIe
161
Bridge Module
162
Accelerator
163
MR1
Storage Controller
170_1
171
Control Block
172
MR2
SM Bus
160a_3
174
Mapping Table
173
MR3

FIG.12


100B
Host System
120
SM Bus
CXL.mem
PCIe
160
Storage Set
MR1
MR2
MR3
Storage Set
Storage Set
Battery Module
160a
160b
160c
180