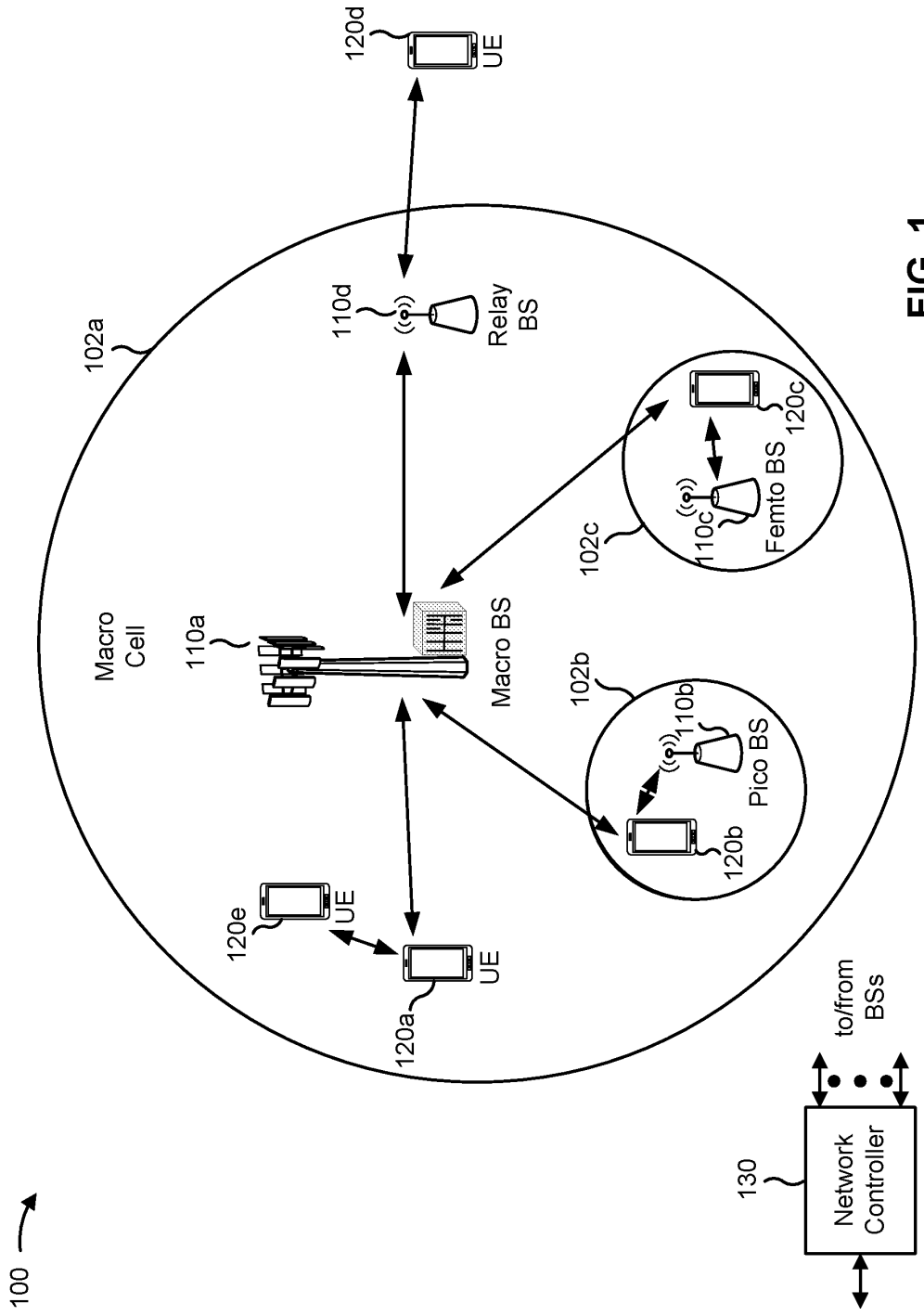
100
102a
Macro Cell
110a
Macro BS
110d
Relay BS
120d
UE
102c
110c
Femto BS
120c
102b
110b
Pico BS
120b
120e
UE
120a
UE
130
Network Controller
to/from BSs

FIG. 1

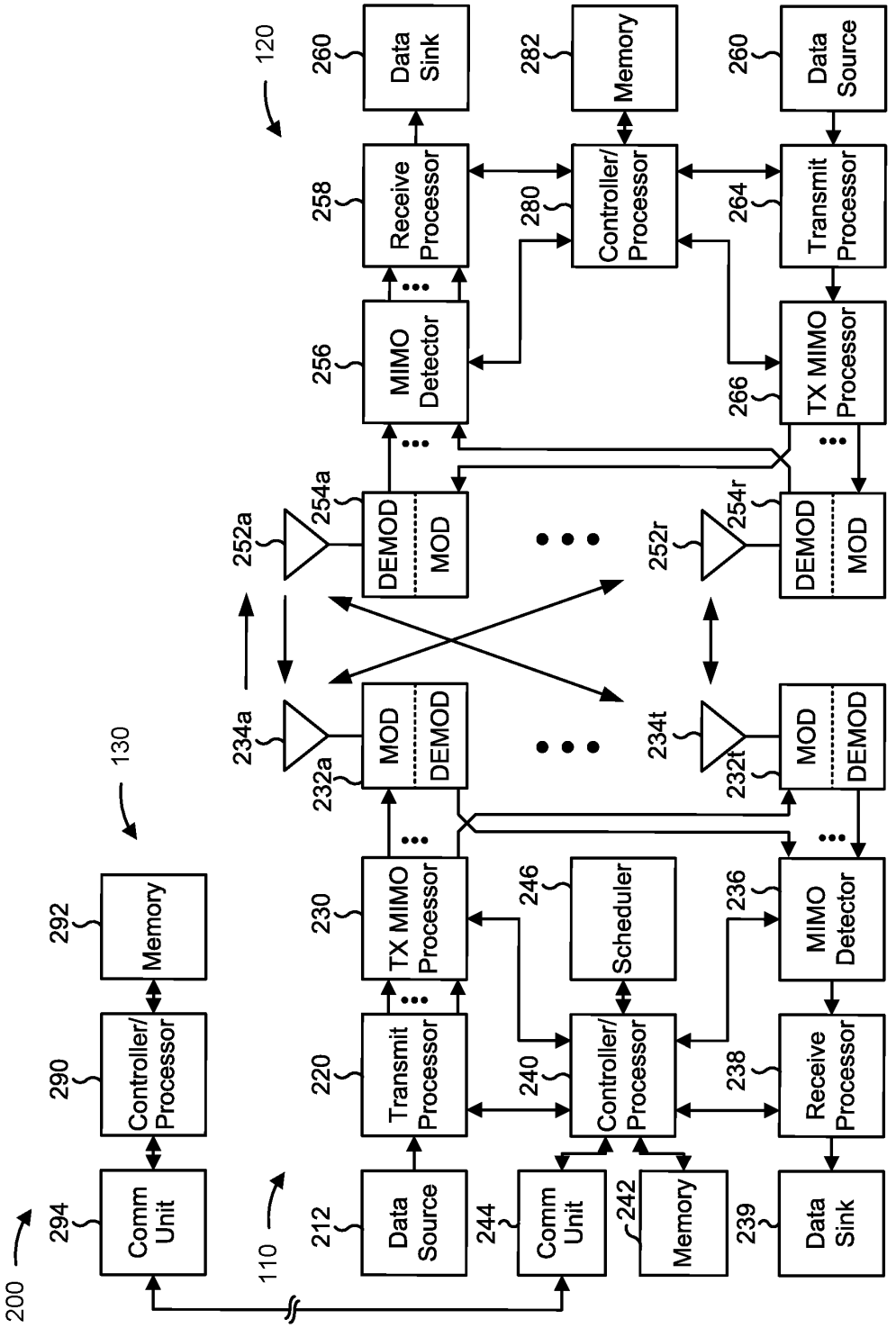
200
110
120
130
294
Comm Unit
290
Controller/ Processor
292
Memory
212
Data Source
220
Transmit Processor
230
TX MIMO Processor
232a
MOD
DEMOD
234a
252a
254a
DEMOD
MOD
256
MIMO Detector
258
Receive Processor
260
Data Sink
240
Controller/ Processor
242
Memory
244
Comm Unit
246
Scheduler
234t
252r
254r
266
TX MIMO Processor
264
Transmit Processor
280
Controller/ Processor
282
Memory
238
Receive Processor
236
MIMO Detector
232t
239
Data Sink
260
Data Source

FIG. 2

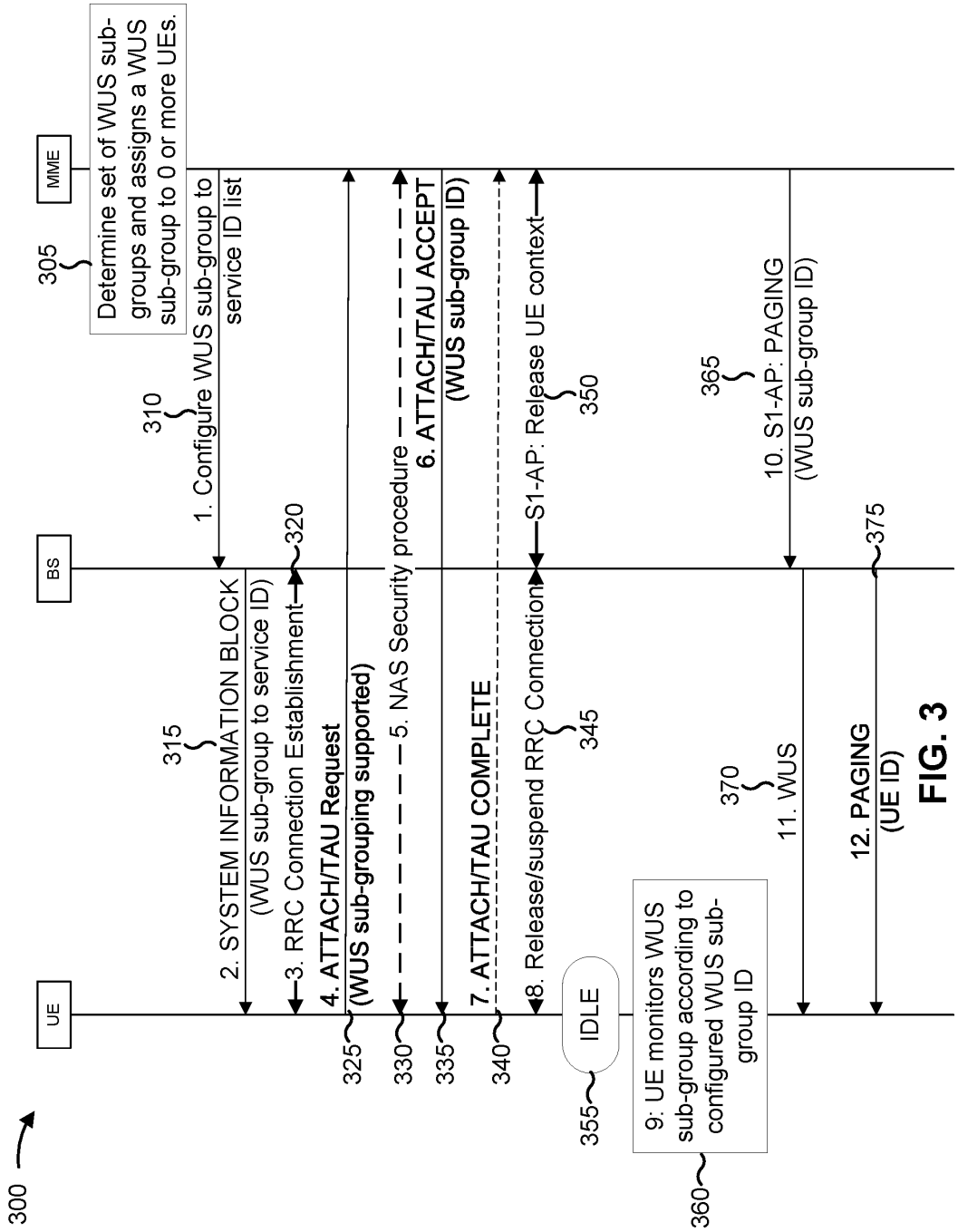
300
UE
BS
MME
305
Determine set of WUS sub-groups and assigns a WUS sub-group to 0 or more UEs.
310
1. Configure WUS sub-group to service ID list
315
2. SYSTEM INFORMATION BLOCK (WUS sub-group to service ID)
320
3. RRC Connection Establishment
325
4. ATTACH/TAU Request (WUS sub-grouping supported)
330
5. NAS Security procedure
335
6. ATTACH/TAU ACCEPT (WUS sub-group ID)
340
7. ATTACH/TAU COMPLETE
345
8. Release/suspend RRC Connection
350
S1-AP: Release UE context
355
IDLE
360
9: UE monitors WUS sub-group according to configured WUS sub-group ID
365
10. S1-AP: PAGING (WUS sub-group ID)
370
11. WUS
375
12. PAGING (UE ID)

FIG. 3

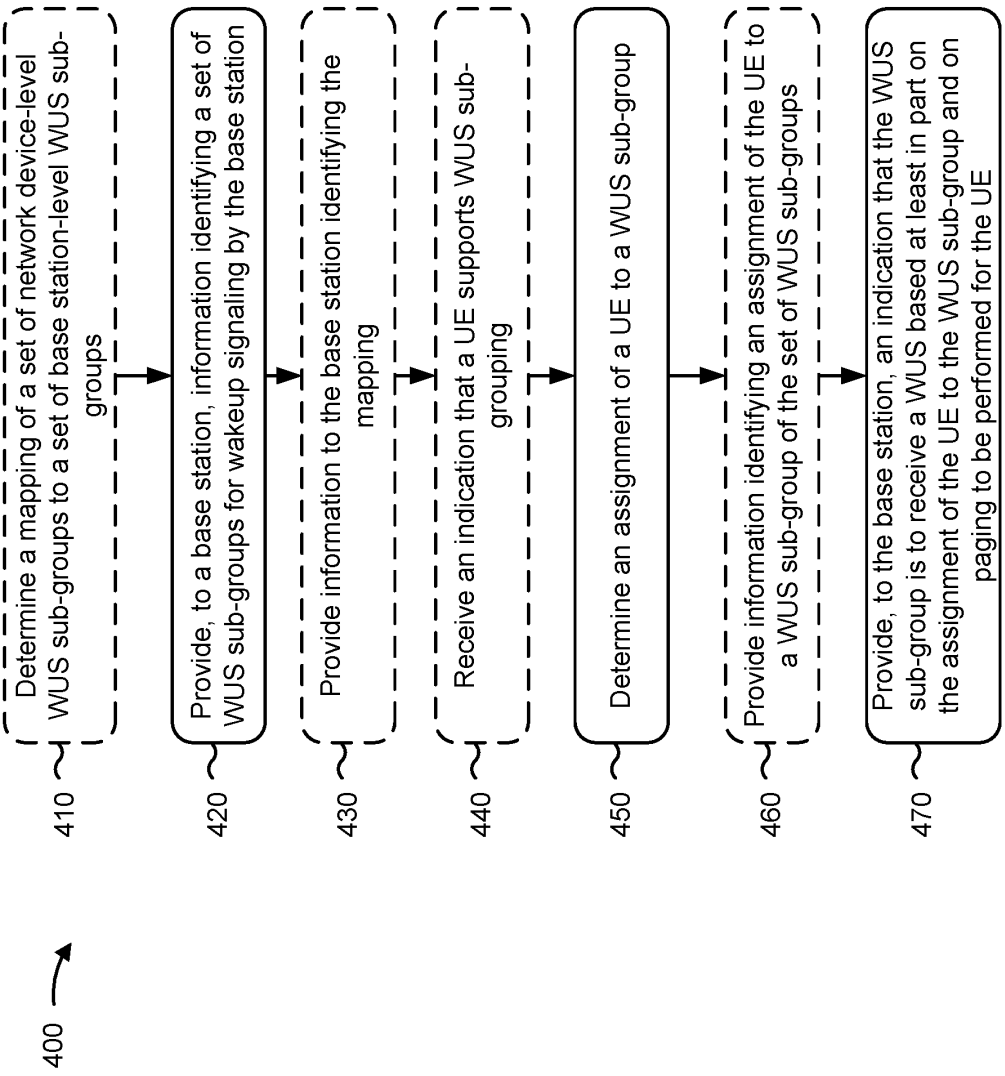
400
410
Determine a mapping of a set of network device-level WUS sub-groups to a set of base station-level WUS sub-groups
420
Provide, to a base station, information identifying a set of WUS sub-groups for wakeup signaling by the base station
430
Provide information to the base station identifying the mapping
440
Receive an indication that a UE supports WUS sub-grouping
450
Determine an assignment of a UE to a WUS sub-group
460
Provide information identifying an assignment of the UE to a WUS sub-group of the set of WUS sub-groups
470
Provide, to the base station, an indication that the WUS sub-group is to receive a WUS based at least in part on the assignment of the UE to the WUS sub-group and on paging to be performed for the UE

FIG. 4

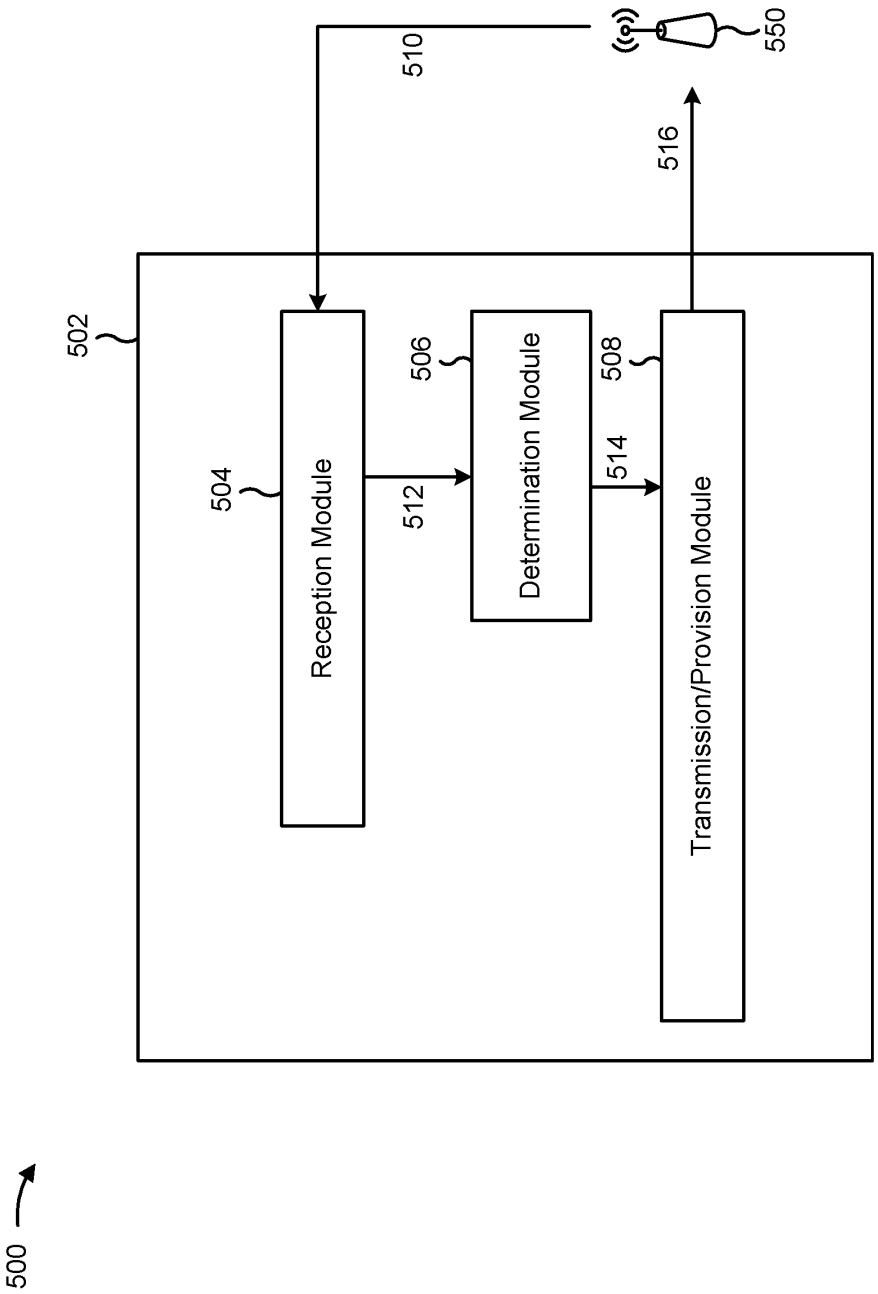
500
502
504
Reception Module
506
Determination Module
508
Transmission/Provision Module
510
512
514
516
550

FIG. 5

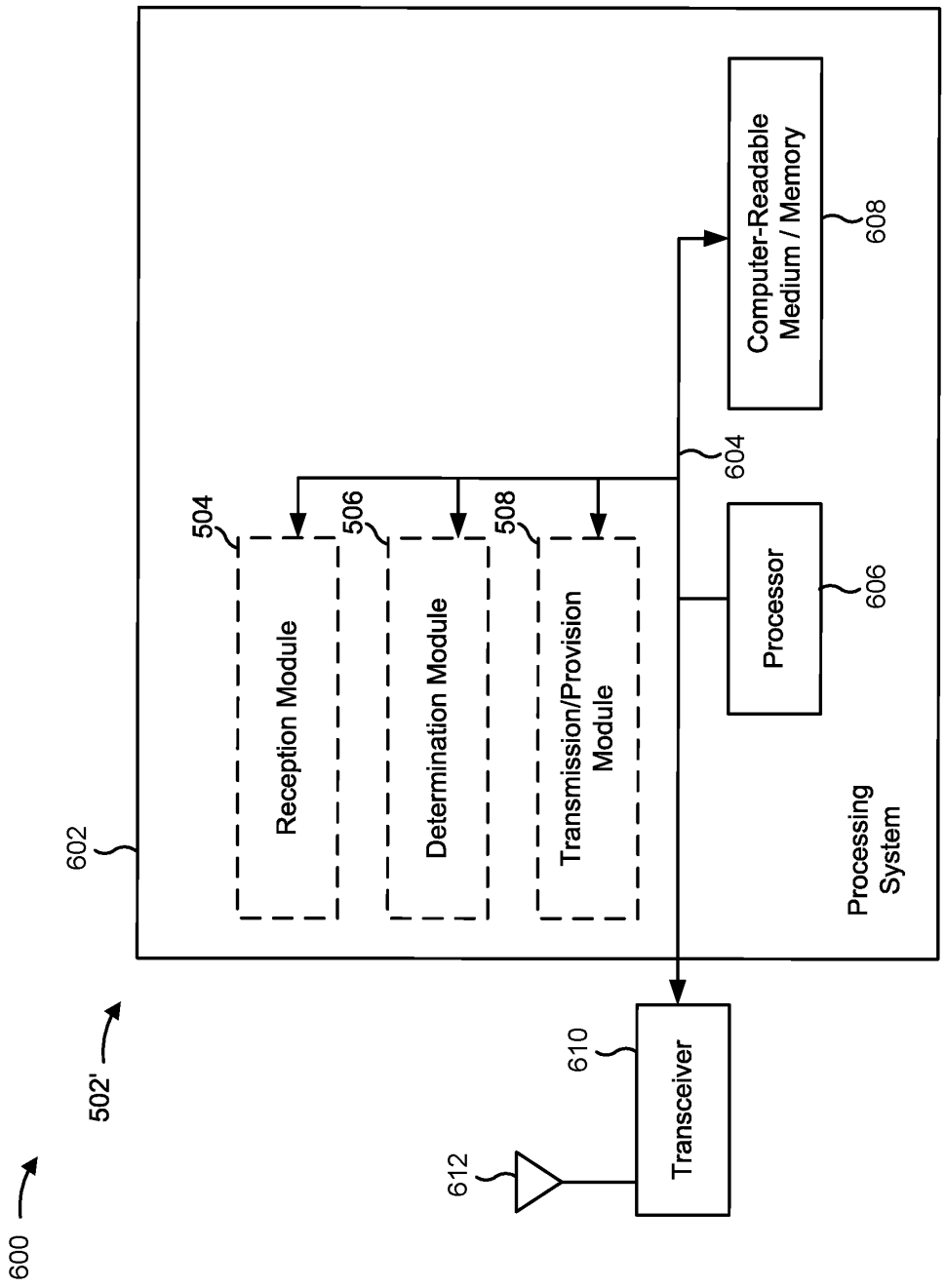
600
502'
602
Processing System
Reception Module
504
Determination Module
506
Transmission/Provision Module
508
604
Computer-Readable Medium / Memory
608
Processor
606
610
Transceiver
612

FIG. 6

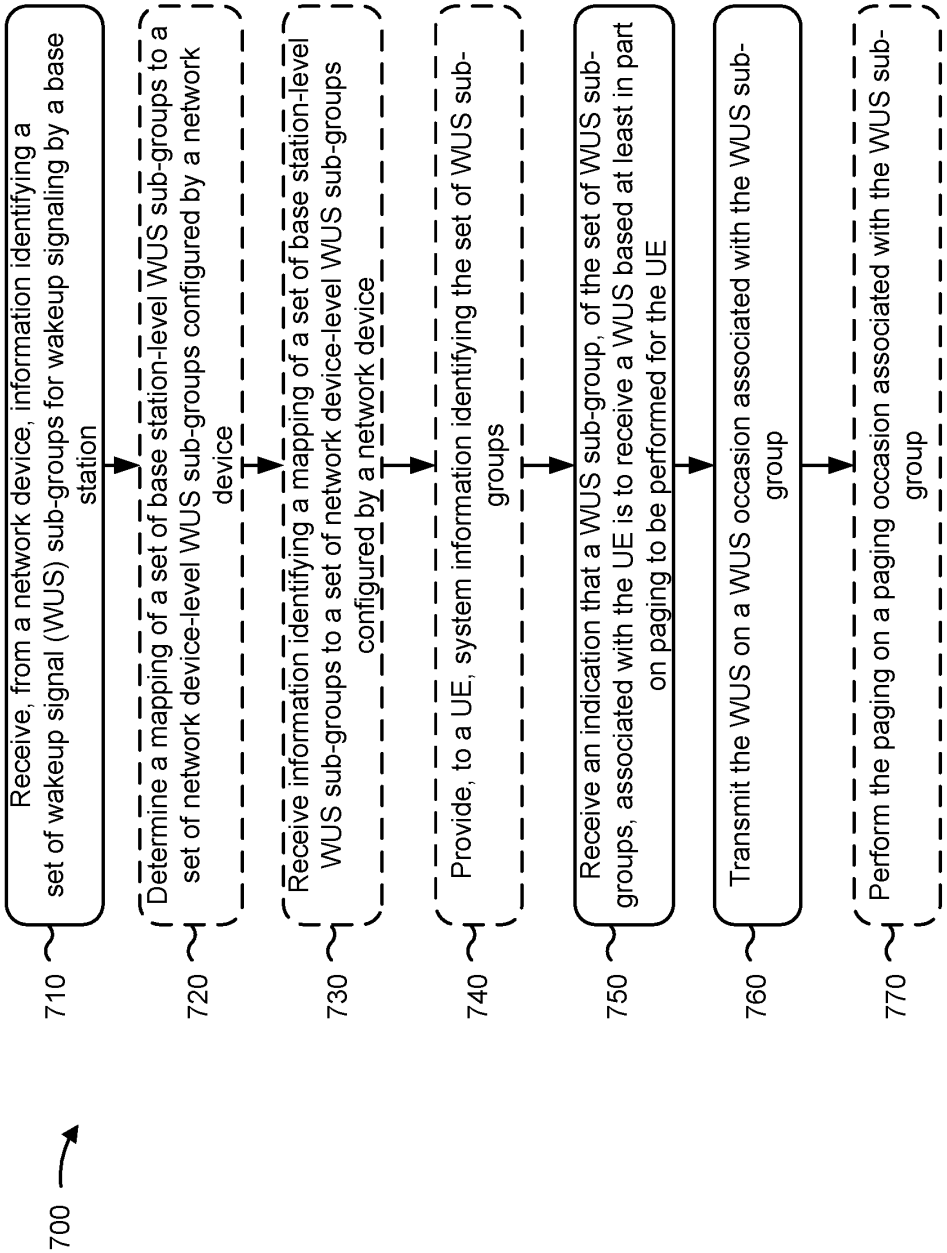
700
710
Receive, from a network device, information identifying a set of wakeup signal (WUS) sub-groups for wakeup signaling by a base station
720
Determine a mapping of a set of base station-level WUS sub-groups to a set of network device-level WUS sub-groups configured by a network device
730
Receive information identifying a mapping of a set of base station-level WUS sub-groups to a set of network device-level WUS sub-groups configured by a network device
740
Provide, to a UE, system information identifying the set of WUS sub-groups
750
Receive an indication that a WUS sub-group, of the set of WUS sub-groups, associated with the UE is to receive a WUS based at least in part on paging to be performed for the UE
760
Transmit the WUS on a WUS occasion associated with the WUS sub-group
770
Perform the paging on a paging occasion associated with the WUS sub-group

FIG. 7

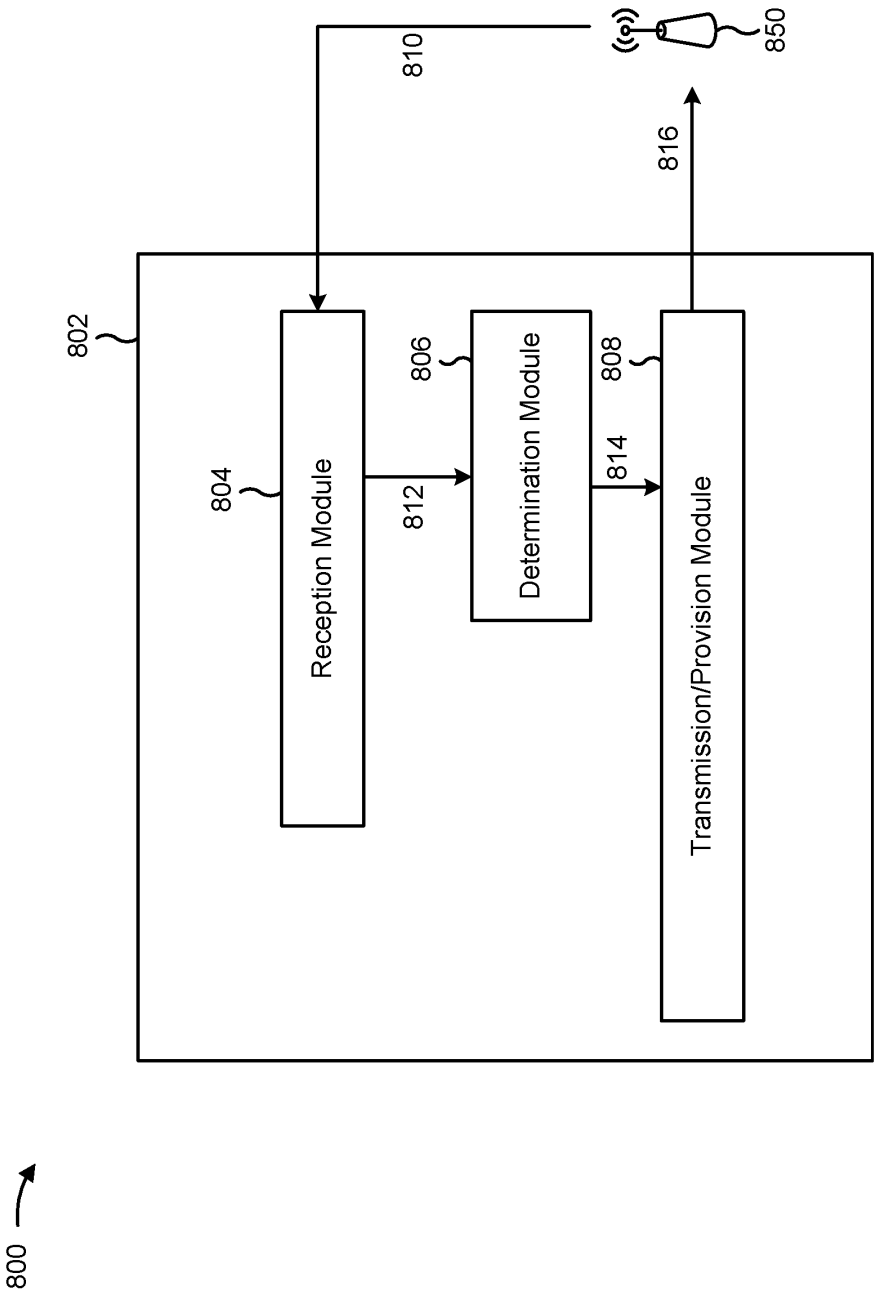
800
802
804
Reception Module
806
Determination Module
808
Transmission/Provision Module
810
812
814
816
850

FIG. 8

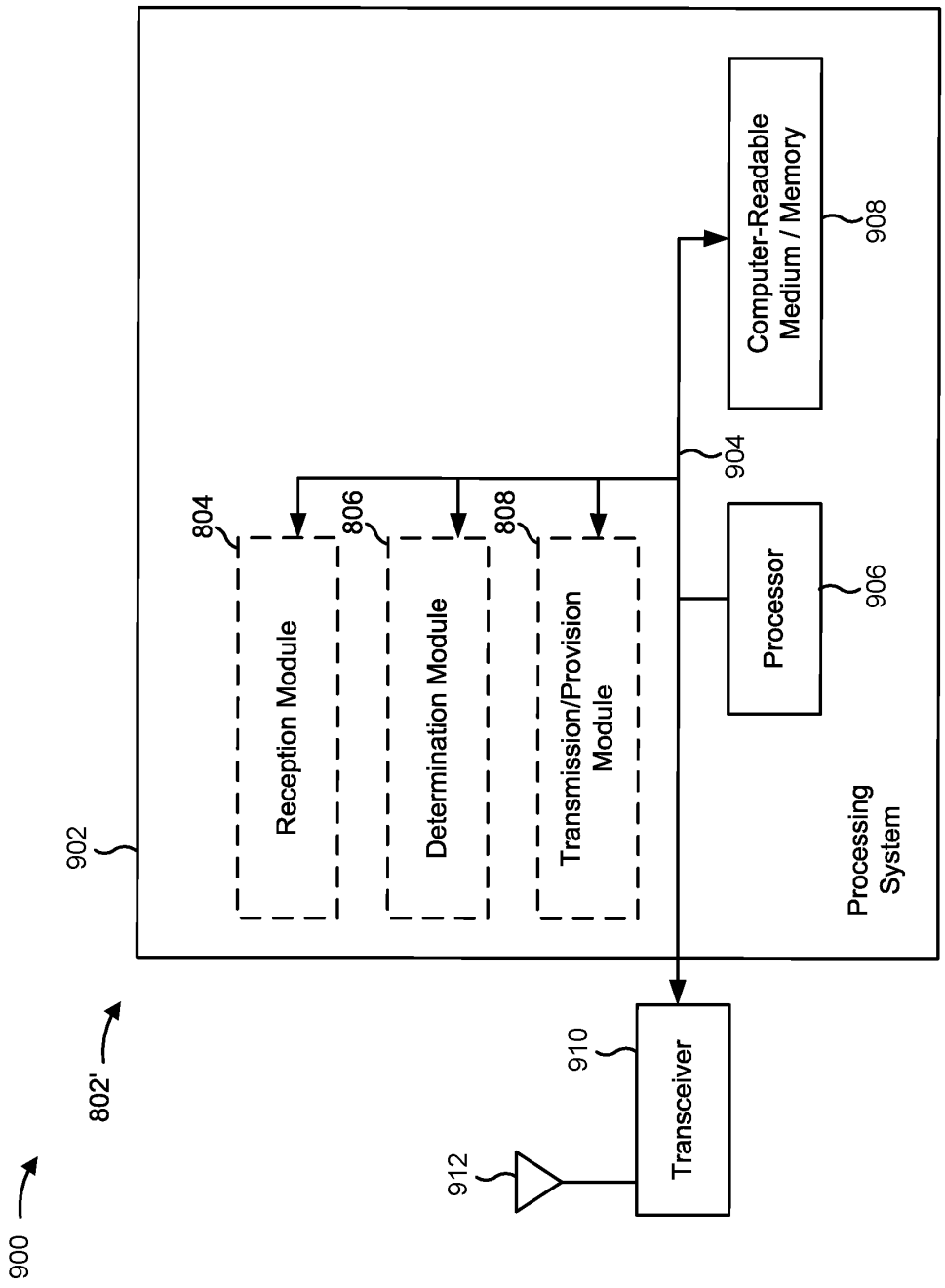
900
802'
902
Processing System
Reception Module
804
Determination Module
806
Transmission/Provision Module
808
904
Computer-Readable Medium / Memory
908
Processor
906
910
Transceiver
912

FIG. 9

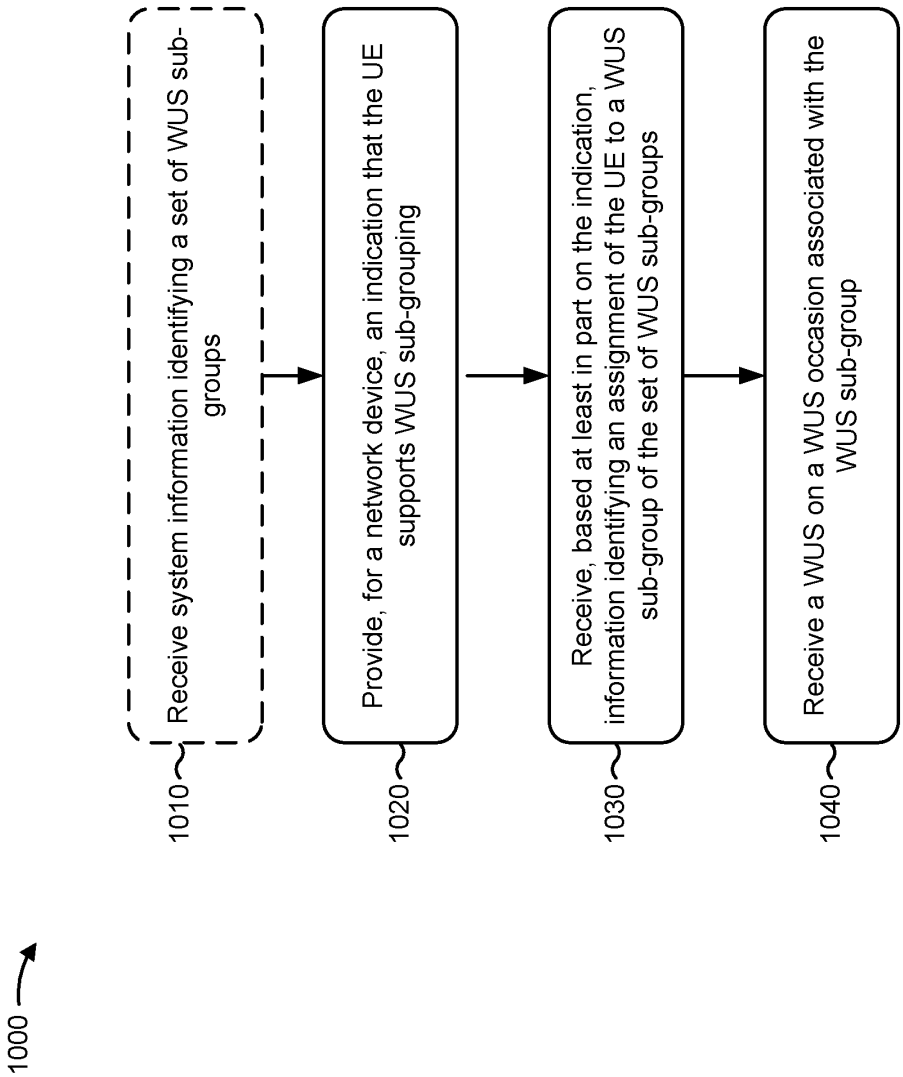
1000
1010
Receive system information identifying a set of WUS sub-groups
1020
Provide, for a network device, an indication that the UE supports WUS sub-grouping
1030
Receive, based at least in part on the indication, information identifying an assignment of the UE to a WUS sub-group of the set of WUS sub-groups
1040
Receive a WUS on a WUS occasion associated with the WUS sub-group

FIG. 10

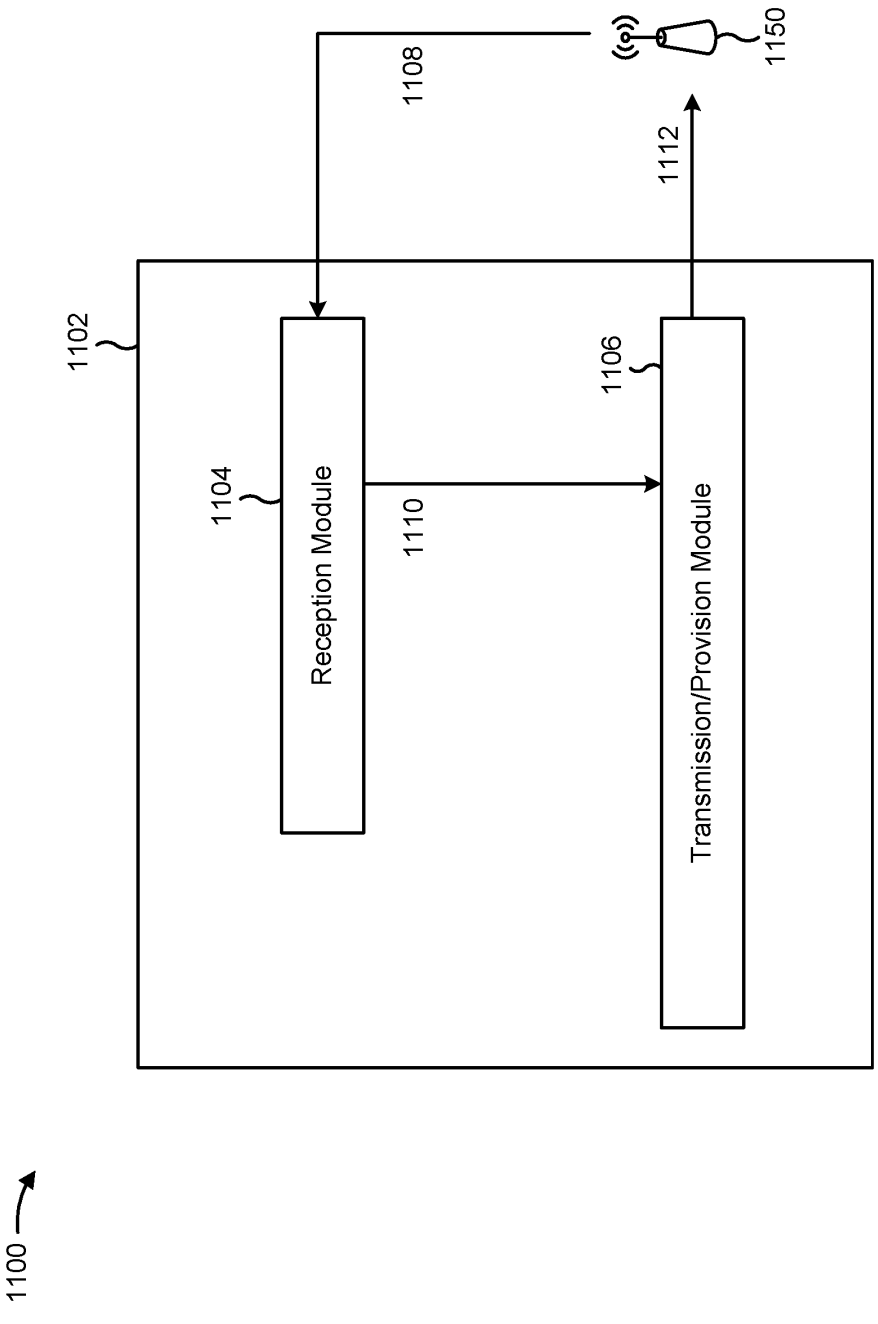
1150
1108
1112
1102
1106
1104
Reception Module
1110
Transmission/Provision Module
1100

FIG. 11

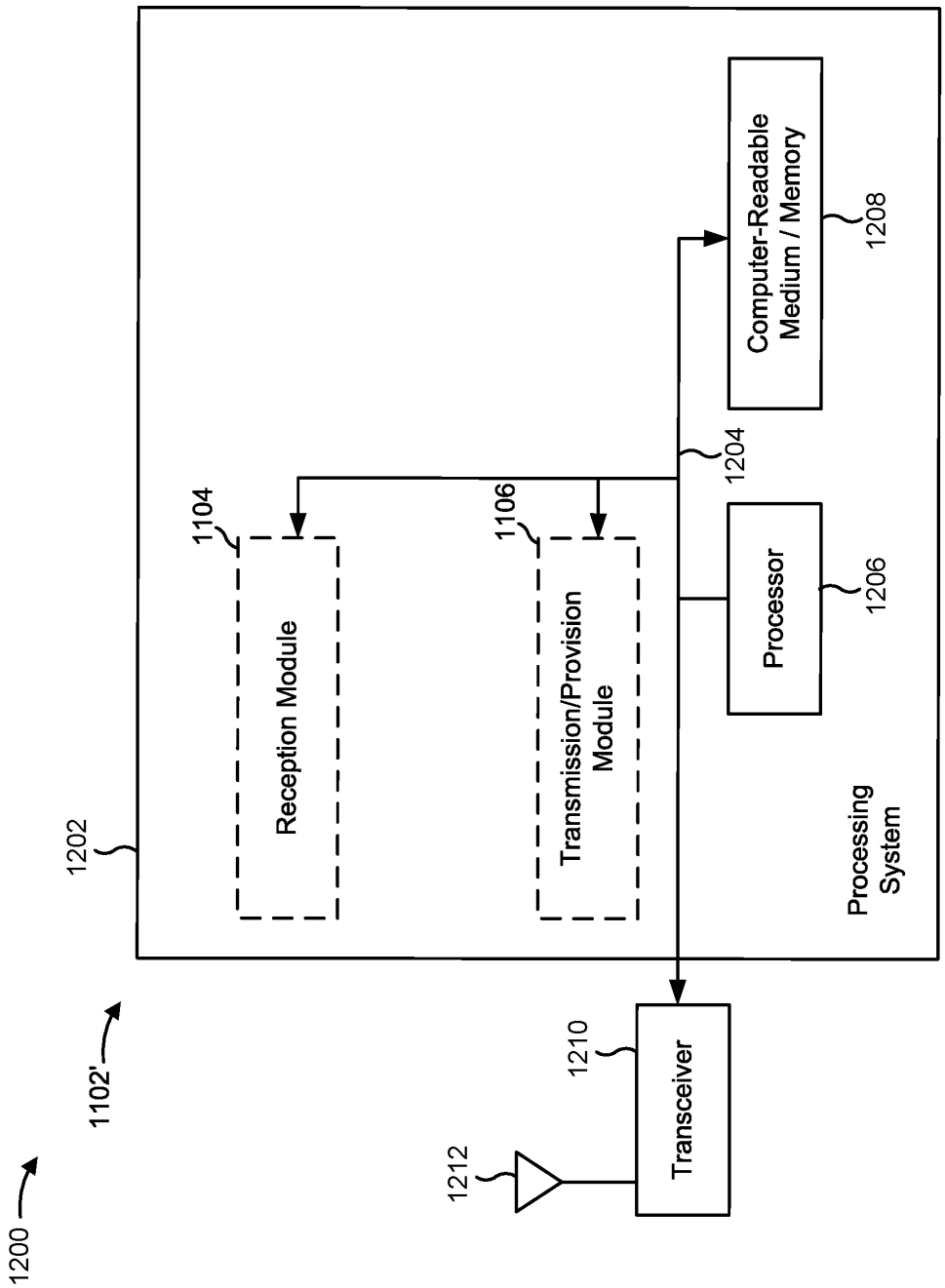
1200
1102'
1202
Processing System
Reception Module
1104
Transmission/Provision Module
1106
Processor
1206
Computer-Readable Medium / Memory
1208
1204
Transceiver
1210
1212

FIG. 12