

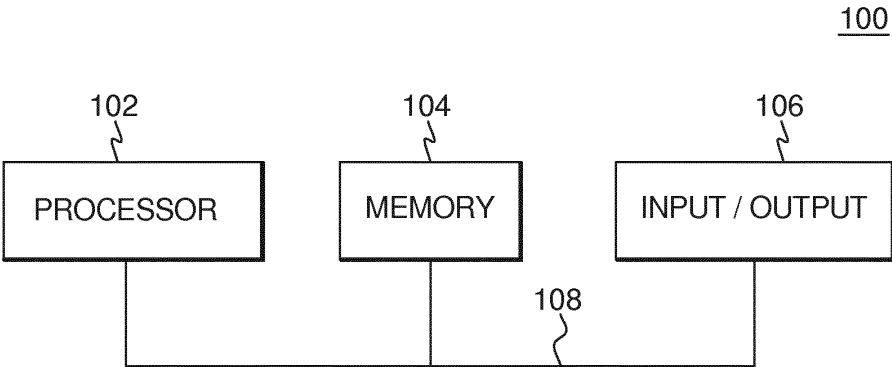


FIG. 1A

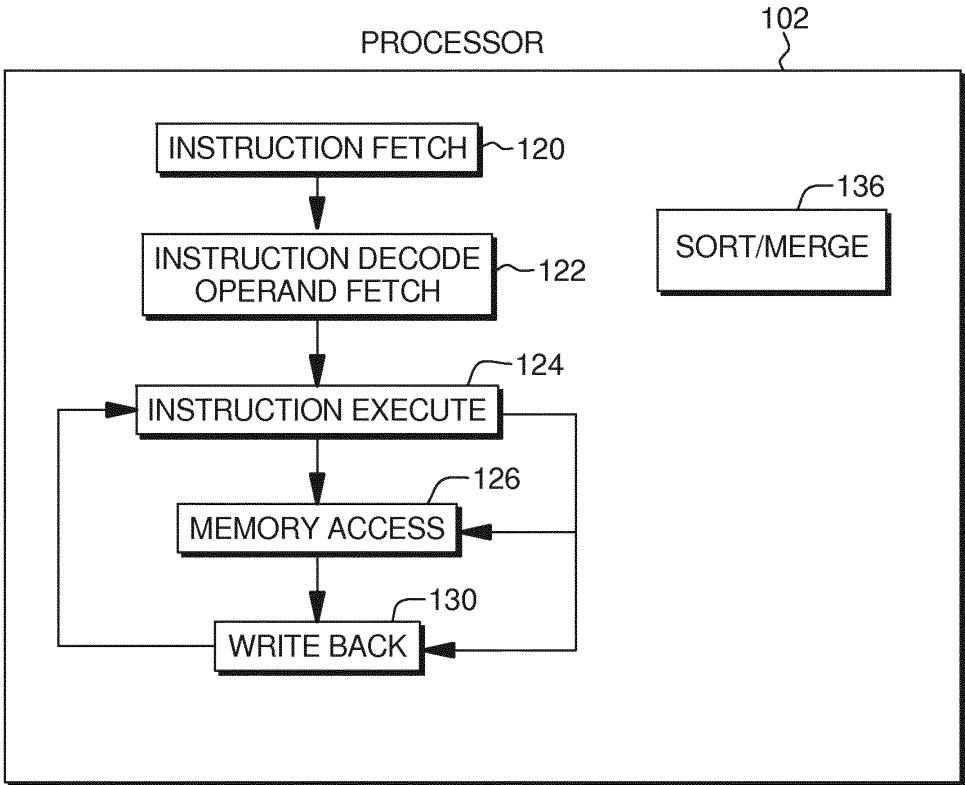


FIG. 1B

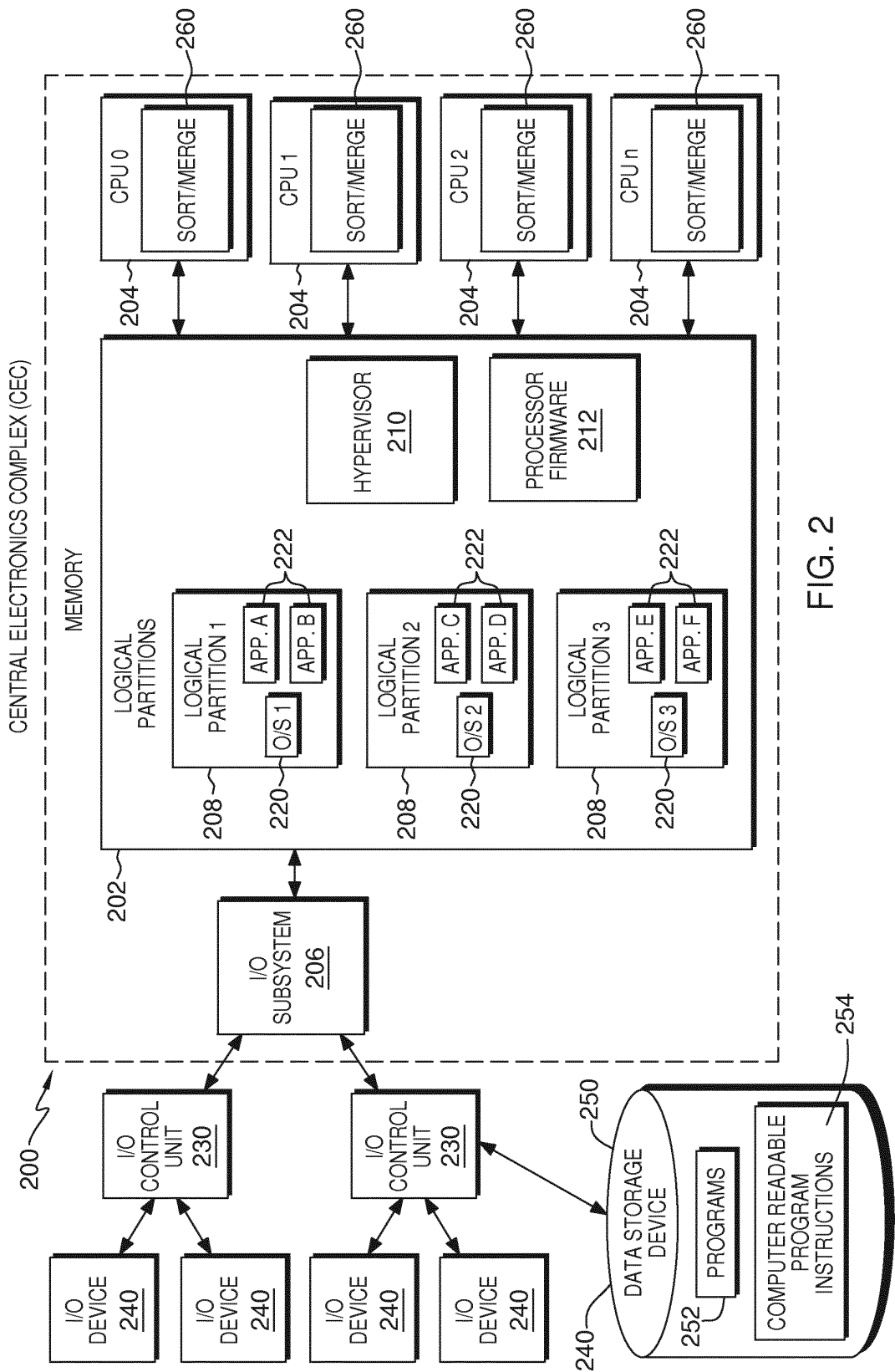
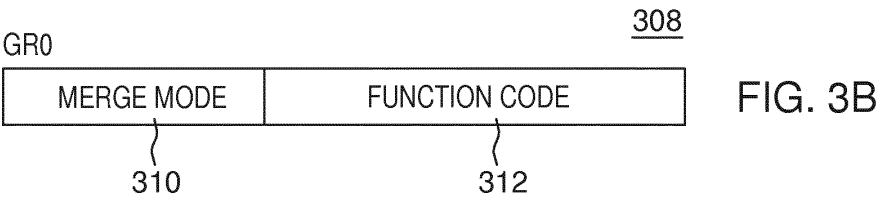
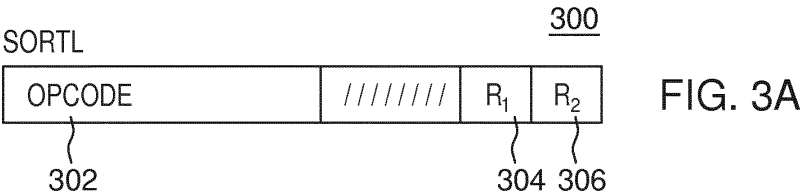
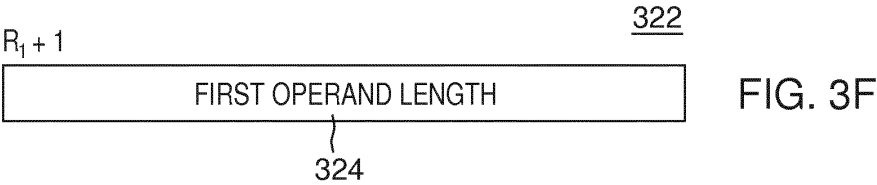
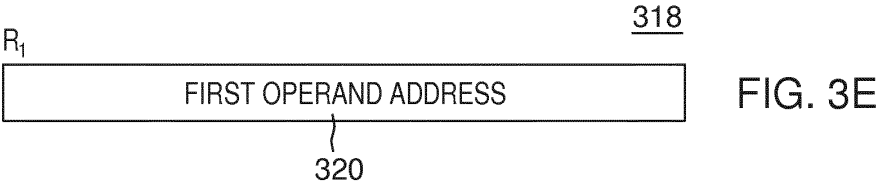
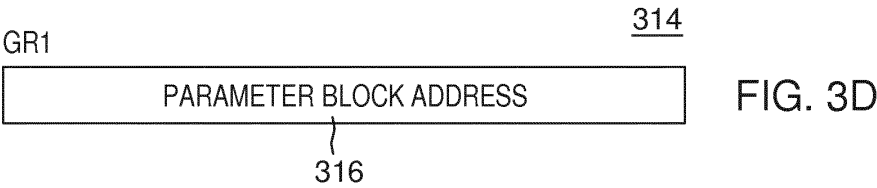


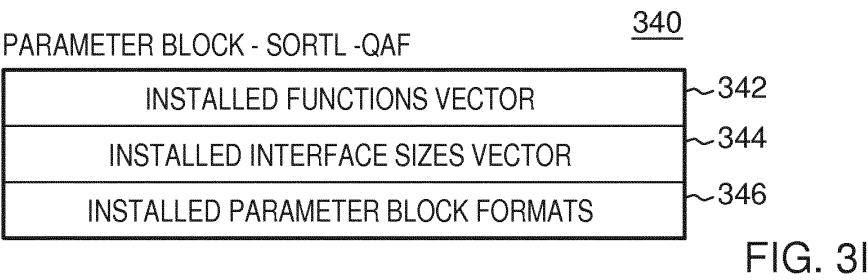
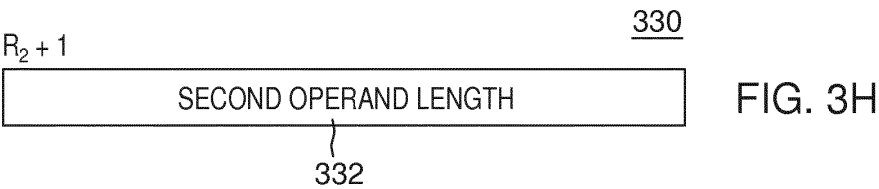
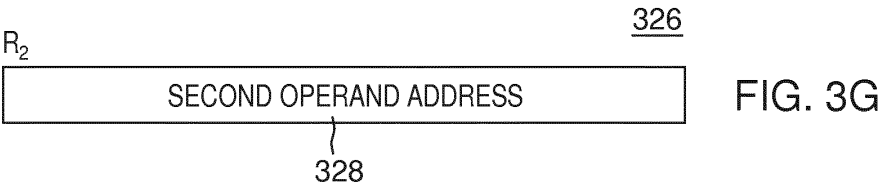
FIG. 2



|     |      |              |                                 |
|-----|------|--------------|---------------------------------|
|     | CODE | FUNCTION     | PARAMETER<br>BLOCK SIZE (BYTES) |
| 313 | 0    | SORTL - QAF  | 32                              |
| 315 | 1    | SORTL - SFLR | 576 + 16 x N <sub>IS</sub>      |
| 317 | 2    | SORTL - SVLR | 576 + 16 x N <sub>IS</sub>      |

FIG. 3C





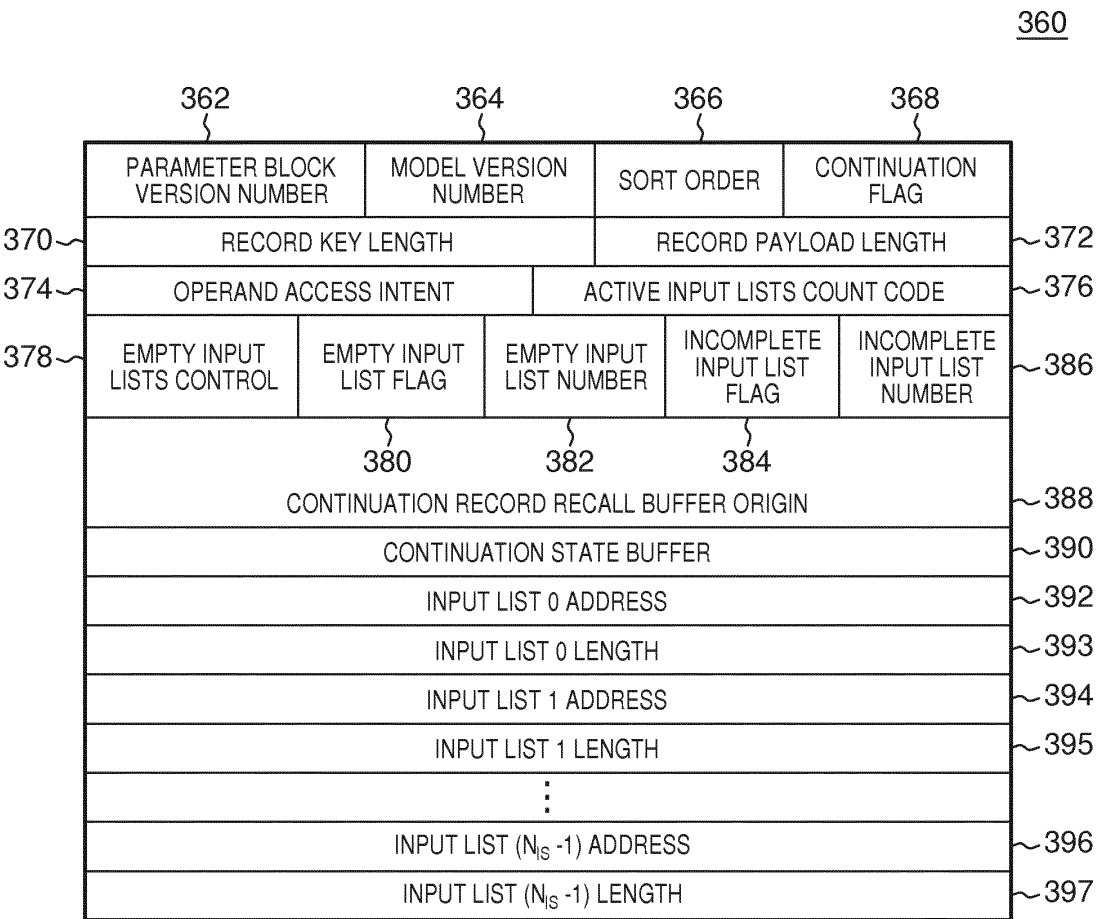


FIG. 3K

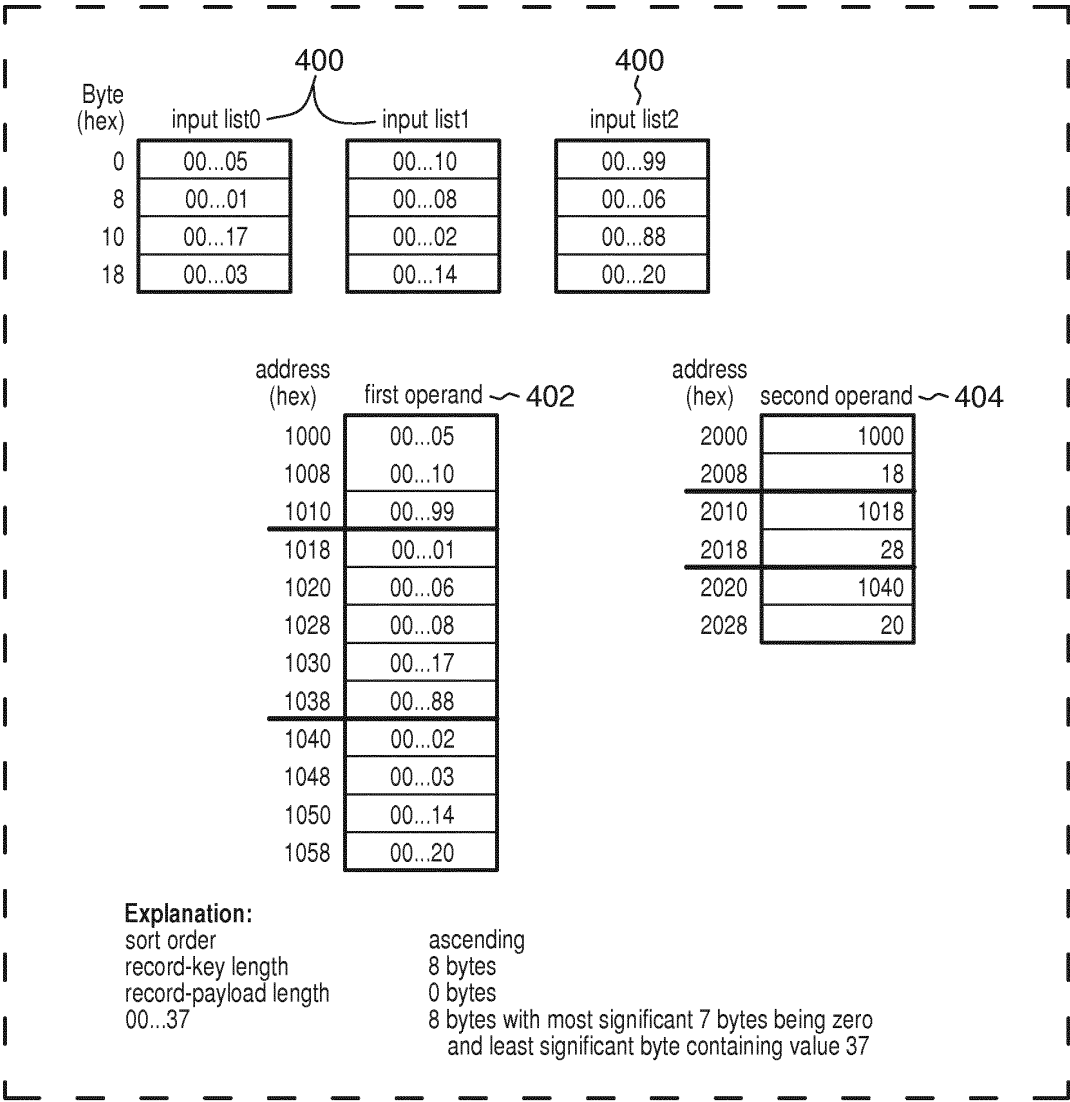


FIG. 4A

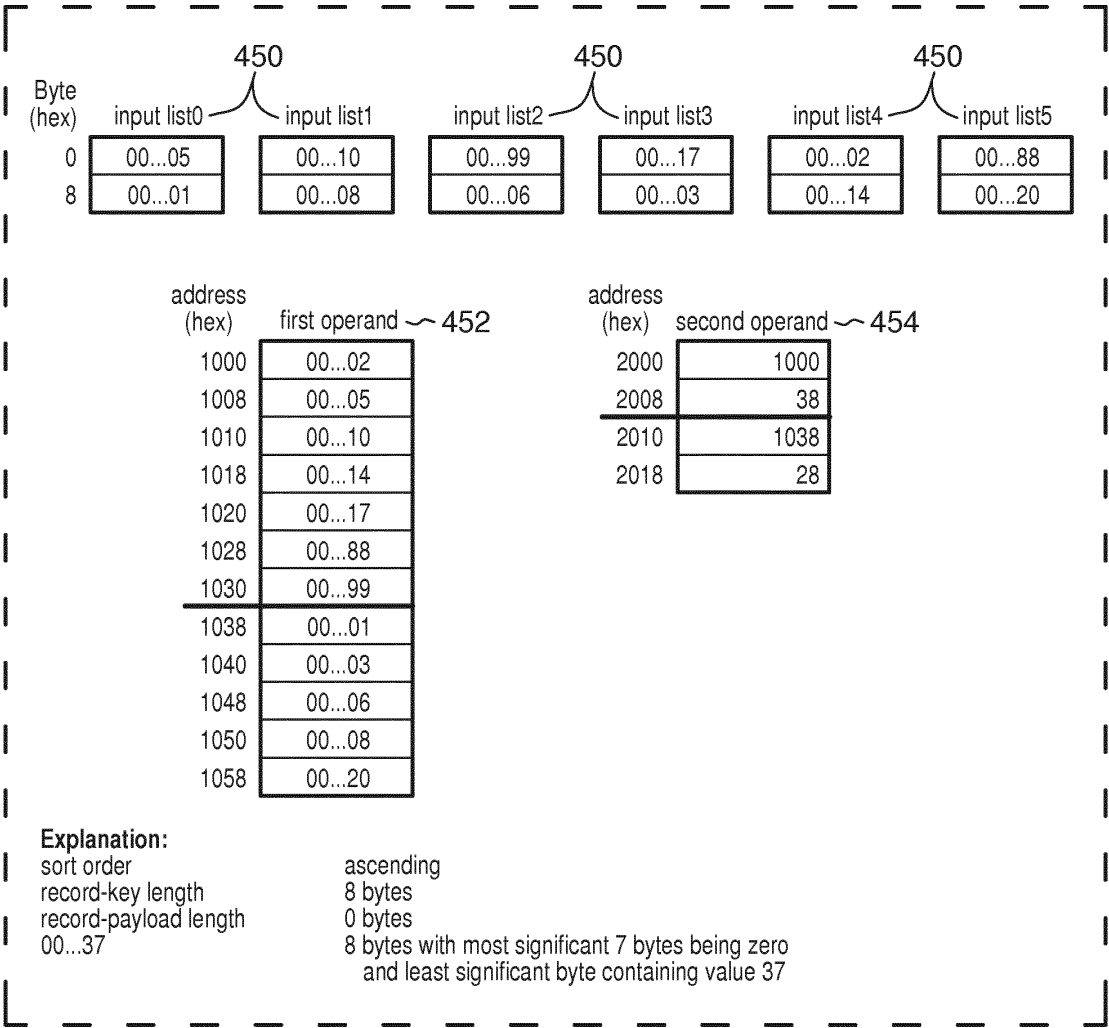


FIG. 4B

| Input to SORTL SFLR                                                                                                                                                                                                                                                                                                        | Before the operation                                                                                                                                                                                   | After partially completing the operation (CC=1, 2, or 3)                                               | Before resuming the operation                                                                                                                                                                              | After completing the operation (CC=0)                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| parameter block version number<br>model version number<br>sort order                                                                                                                                                                                                                                                       | program's choice<br>zeros recommended<br>program's choice                                                                                                                                              | unchanged<br>set<br>unchanged                                                                          | same as before BO<br>same as after PC<br>same as before BO                                                                                                                                                 | unchanged<br>set<br>unchanged                                                                          |
| continuation flag                                                                                                                                                                                                                                                                                                          | zero required                                                                                                                                                                                          | set to one                                                                                             | same as after PC                                                                                                                                                                                           | set to zero                                                                                            |
| record key length<br>record payload length<br>operand access intent<br>active input lists count<br>empty input lists control<br>empty input list flag<br>empty input list number<br>incomplete input list flag<br>incomplete input list number<br>continuation record recall buffer<br>origin<br>continuation state buffer | program's choice<br>program's choice<br>program's choice<br>program's choice<br>program's choice<br>zero recommended<br>zeros recommended<br>zero recommended<br>zeros recommended<br>program's choice | unchanged<br>unchanged<br>unchanged<br>unchanged<br>unchanged<br>set<br>set<br>set<br>set<br>unchanged | same as before BO<br>same as before BO<br>same as before BO<br>same as before BO<br>same as before BO<br>same as after PC<br>same as after PC<br>same as after PC<br>same as after PC<br>same as before BO | unchanged<br>unchanged<br>unchanged<br>unchanged<br>unchanged<br>set<br>set<br>set<br>set<br>unchanged |
| input listN address                                                                                                                                                                                                                                                                                                        | program's choice                                                                                                                                                                                       | modified                                                                                               | restrictions apply -<br>refer to FIG. 5B                                                                                                                                                                   | modified                                                                                               |
| input listN length                                                                                                                                                                                                                                                                                                         | program's choice                                                                                                                                                                                       | modified                                                                                               | restrictions apply -<br>refer to FIG. 5B                                                                                                                                                                   | modified                                                                                               |
| merge mode                                                                                                                                                                                                                                                                                                                 | program's choice                                                                                                                                                                                       | unchanged                                                                                              | same as before BO                                                                                                                                                                                          | unchanged                                                                                              |
| first operand address                                                                                                                                                                                                                                                                                                      | program's choice                                                                                                                                                                                       | modified                                                                                               | restrictions apply -<br>refer to FIG. 5B                                                                                                                                                                   | modified                                                                                               |
| first operand length                                                                                                                                                                                                                                                                                                       | program's choice                                                                                                                                                                                       | modified                                                                                               | restrictions apply -<br>refer to FIG. 5B                                                                                                                                                                   | modified                                                                                               |
| second operand address<br>(when MM=0)<br>second operand length<br>(when MM=0)<br>continuation record recall buffer<br>(when MM=0)                                                                                                                                                                                          | program's choice<br>program's choice<br>zeros recommended                                                                                                                                              | modified<br>modified<br>set                                                                            | restrictions apply -<br>refer to FIG. 5B<br>restrictions apply -<br>refer to FIG. 5B<br>same as after PC                                                                                                   | modified<br>modified<br>undefined                                                                      |
| <b>Explanation:</b><br>BO begin operation<br>MM Merge Mode<br>PC partial completion                                                                                                                                                                                                                                        |                                                                                                                                                                                                        |                                                                                                        |                                                                                                                                                                                                            |                                                                                                        |

FIG. 5A

| Operation ending conditions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Output list processing when MM=0 | modifications permitted prior to resuming the operation |                                                      |                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------|------------------------------------------------------|--------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                  | input lists                                             | first operand                                        | second operand                       |
| after CC=1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | concludes                        | IL-any: address and length                              | MM=0: address and length<br>MM=1: address and length | MM=0: address and length<br>MM=1: NA |
| after CC=2 and EILF=1<br>(EILN specifies input list which became empty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | continues                        | IL-EILN: address and length<br>IL-others: none          | MM=0: none<br>MM=1: address and length               | MM=0: none<br>MM=1: NA               |
| after CC=2 and IILF=0 and EILF=0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | concludes                        | IL-any: address and length                              | MM=0: address and length<br>MM=1: address and length | MM=0: address and length<br>MM=1: NA |
| after CC=2 and IILF=1<br>(IILN specifies the incomplete input list)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | continues                        | IL-IILN: address and length<br>IL-others: none          | MM=0: none<br>MM=1: address and length               | MM=0: none<br>MM=1: NA               |
| after CC=3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | continues                        | IL-any: none                                            | MM=0: none<br>MM=1: none                             | MM=0: none<br>MM=1: NA               |
| <b>Explanation:</b><br>IL-any input list with any list number<br>IL-EILN input list with list number equal to EILN<br>IL-IILN input list with list number equal to IILN<br>MM Merge Mode<br>NA Not Applicable<br>concludes The output list being processed at the end of the operation is not augmented when the operation resumes<br>continues The output list being processed at the end of the operation may be augmented when the operation resumes<br>none Updates not expected: results are unpredictable if specified values are updated under specified conditions |                                  |                                                         |                                                      |                                      |

FIG. 5B

FIRST OPERAND LOCATION BEFORE EXECUTING SORTL WITH MM = 0:

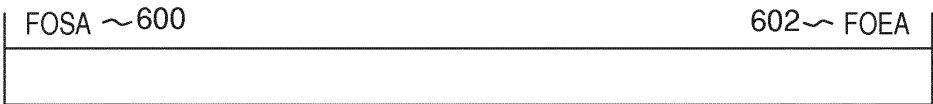


FIG. 6A

FIRST OPERAND LOCATION AFTER EXECUTING SORTL WITH MM = 0:

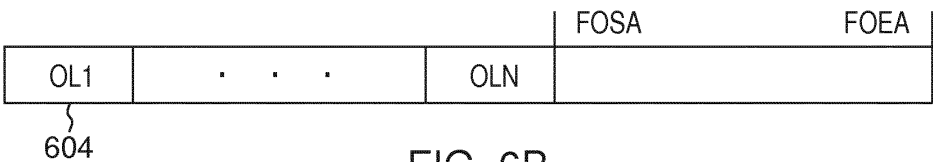


FIG. 6B

SECOND OPERAND LOCATION BEFORE EXECUTING SORTL WITH MM = 0:



FIG. 6C

SECOND OPERAND LOCATION AFTER EXECUTING SORTL WITH MM = 0:

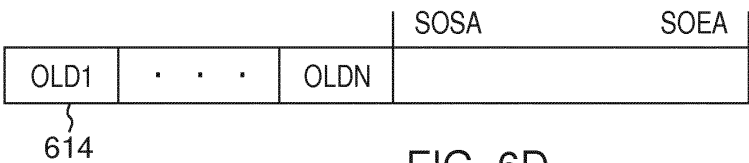


FIG. 6D

11/19

FIRST OPERAND LOCATION BEFORE EXECUTING SORTL WITH MM = 1:

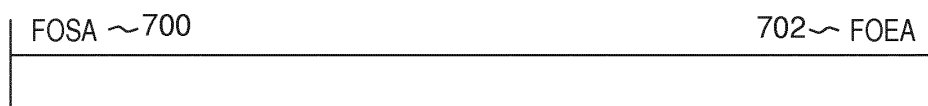


FIG. 7A

FIRST OPERAND LOCATION AFTER EXECUTING SORTL WITH MM = 1:

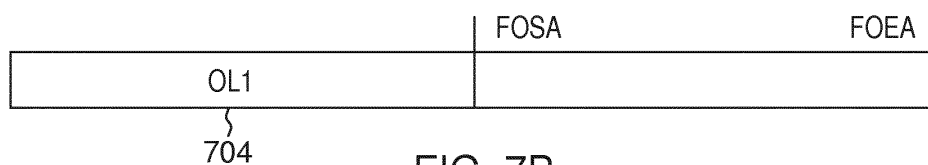


FIG. 7B

| EILCL<br>(bin)                                                                                                            | condition causing operation to end                  | results |      |         |      |         |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------|------|---------|------|---------|
|                                                                                                                           |                                                     | CC      | IILF | IILN    | EILF | EILN    |
| -                                                                                                                         | normal completion                                   | 0       | 0    | 0       | 0    | 0       |
| -                                                                                                                         | first or second operand length is insufficient      | 1       | 0    | 0       | 0    | 0       |
| -                                                                                                                         | IL0 determined to be incomplete                     | 2       | 1    | 0 (IL0) | 0    | 0       |
| -                                                                                                                         | ILN determined to be incomplete                     | 2       | 1    | N (ILN) | 0    | 0       |
| 10                                                                                                                        | IL0 became empty (ILN may also be empty)            | 2       | 0    | 0       | 0    | 0       |
| 01                                                                                                                        | ILN became empty (IL0 may also be empty)            | 2       | 0    | 0       | 0    | 0       |
| 11                                                                                                                        | IL0 became empty (only one input list became empty) | 2       | 0    | 0       | 1    | 0 (IL0) |
| 11                                                                                                                        | ILN became empty (only one input list became empty) | 2       | 0    | 0       | 1    | N (ILN) |
| -                                                                                                                         | CPU-determined number of bytes processed            | 3       | 0    | 0       | 0    | 0       |
| <b>Explanation:</b><br>- any value<br>IL0 input list with list number 0<br>ILN input list with list number N, where N > 0 |                                                     |         |      |         |      |         |

FIG. 8

12/19

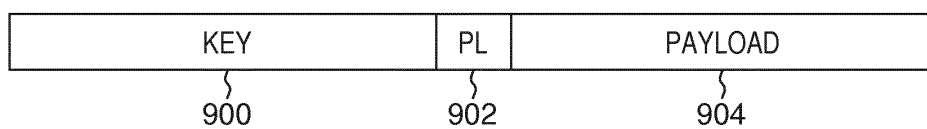


FIG. 9

13/19

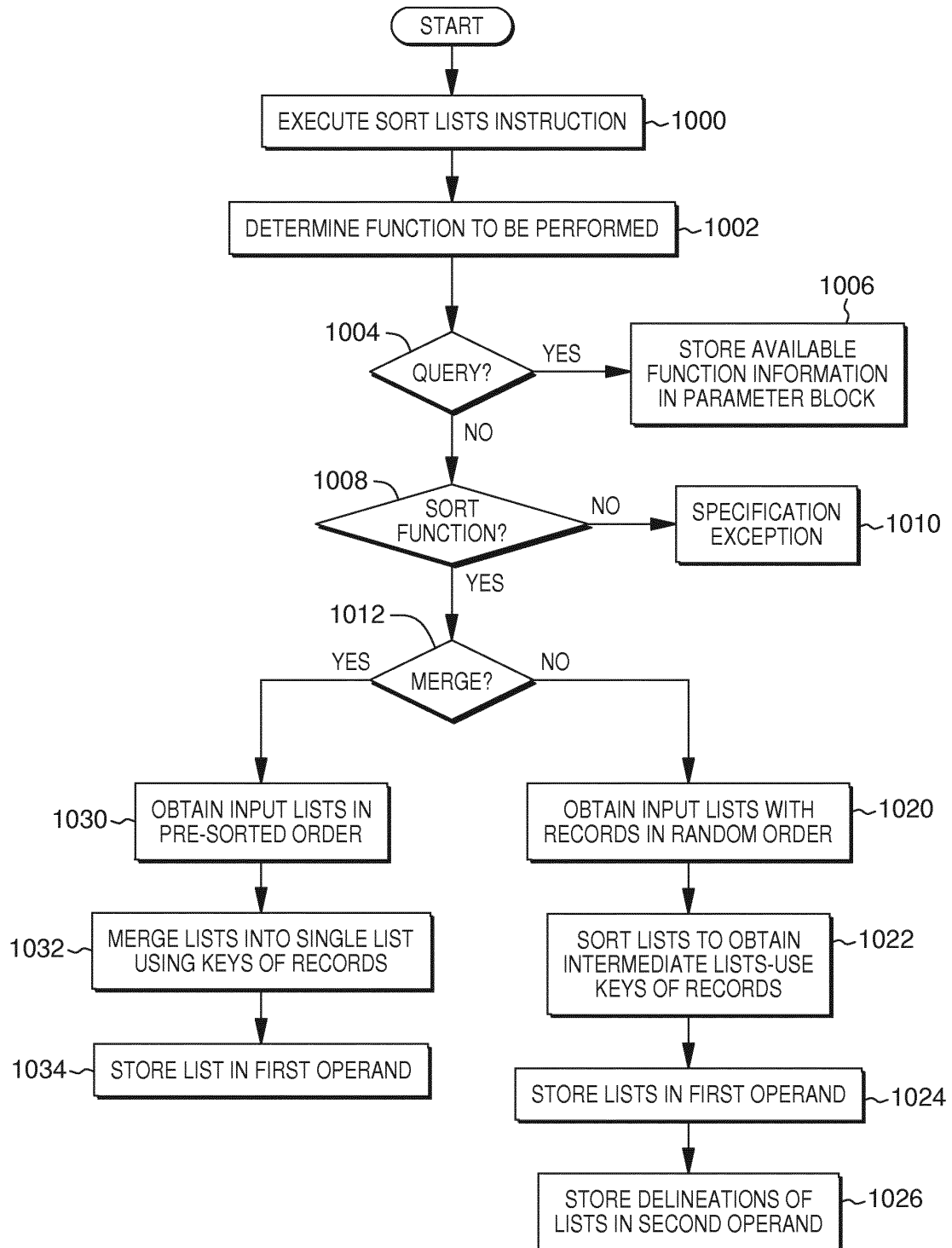


FIG. 10A

14/19

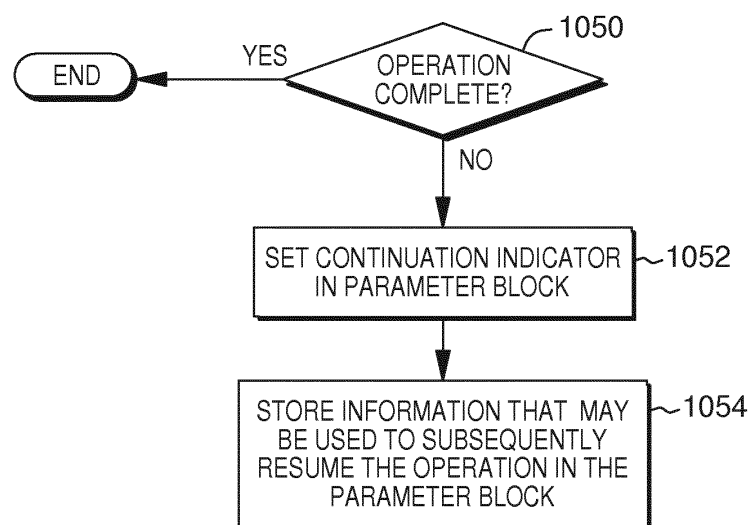


FIG. 10B

15/19

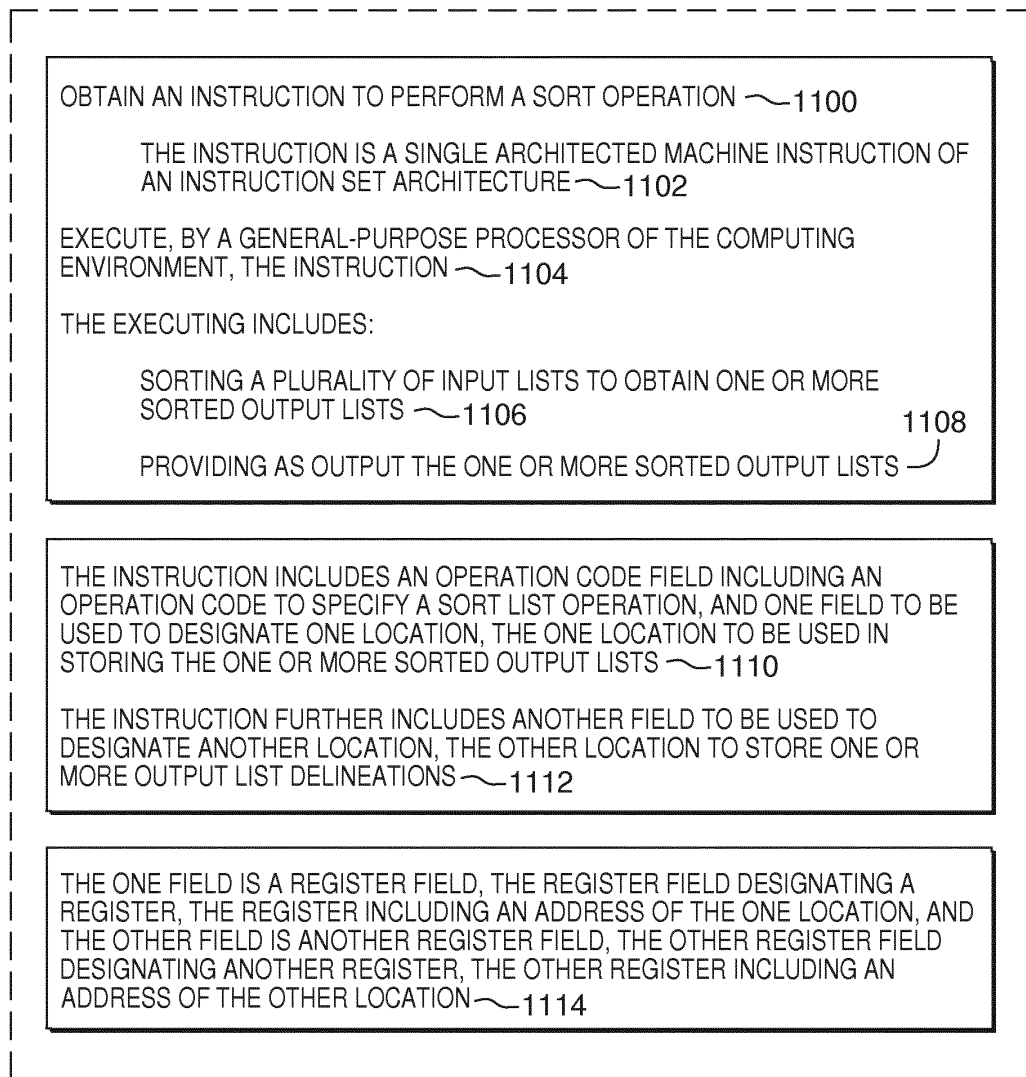


FIG. 11A

16/19

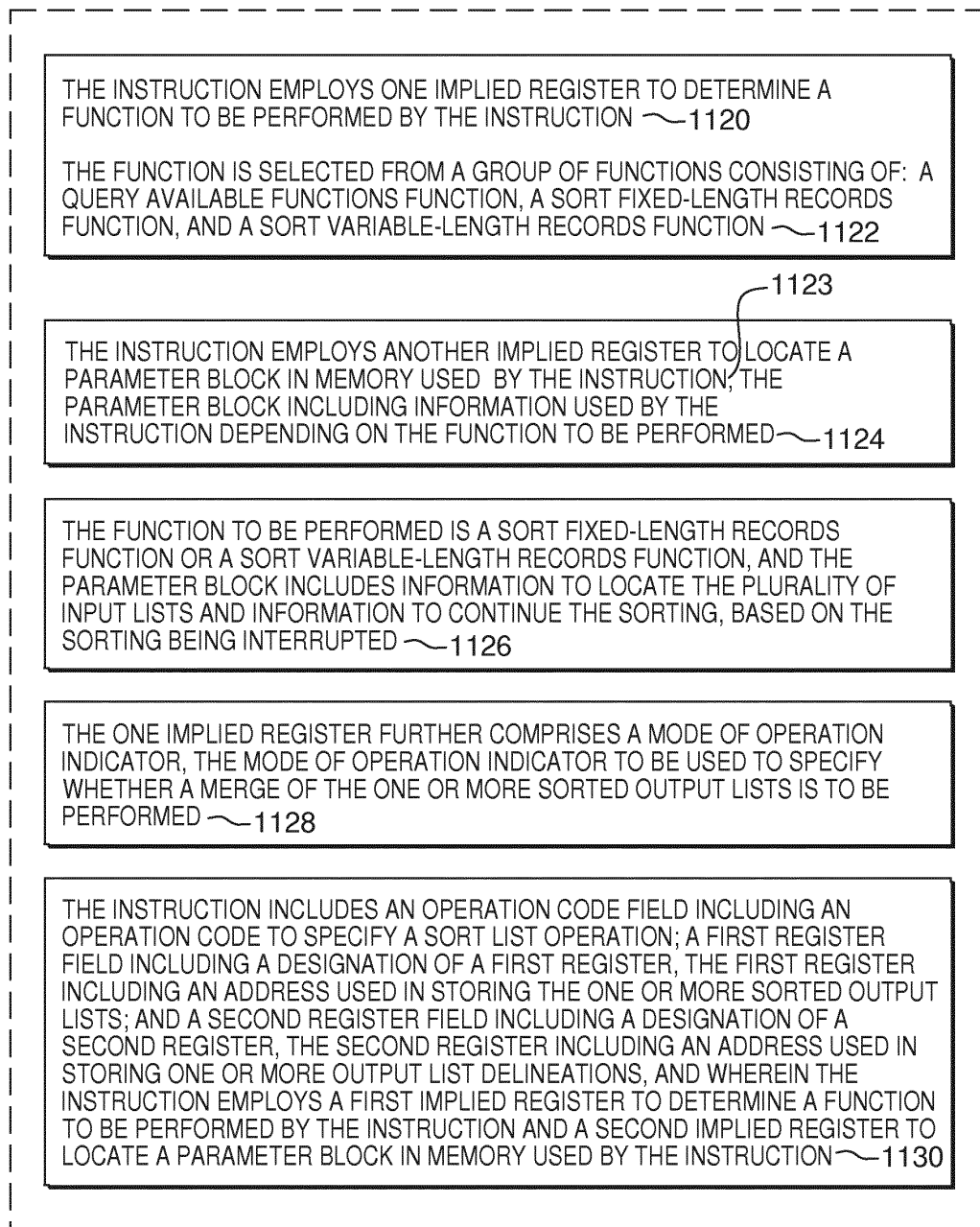


FIG. 11B

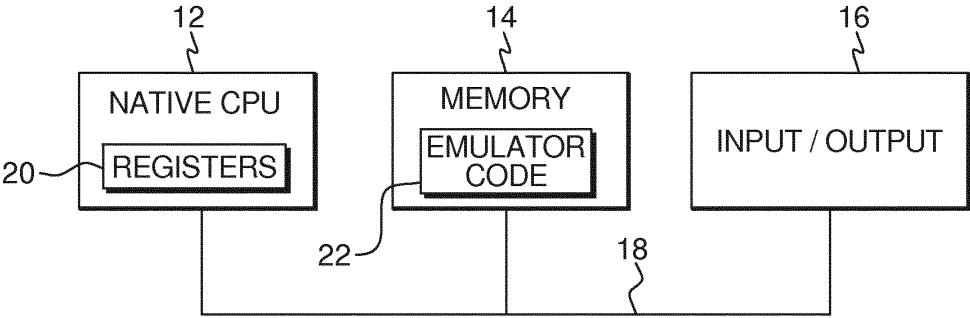


FIG. 12A

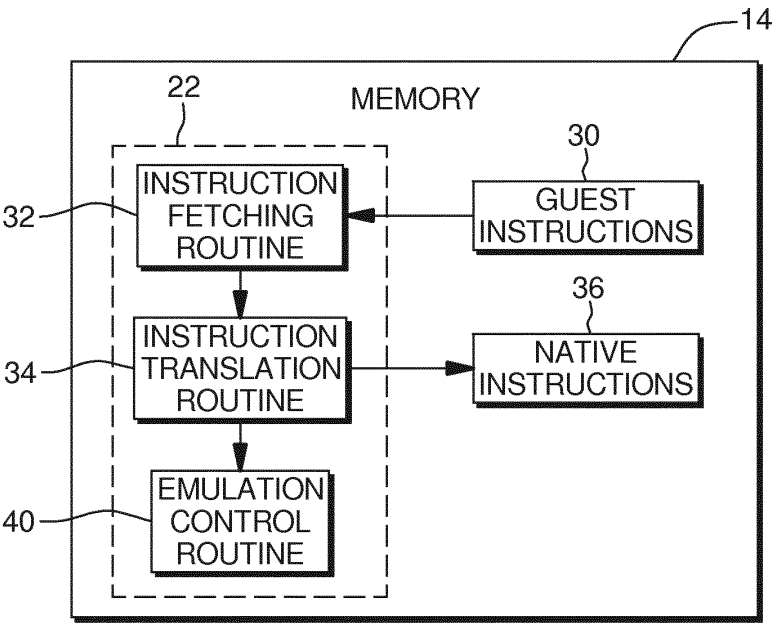


FIG. 12B

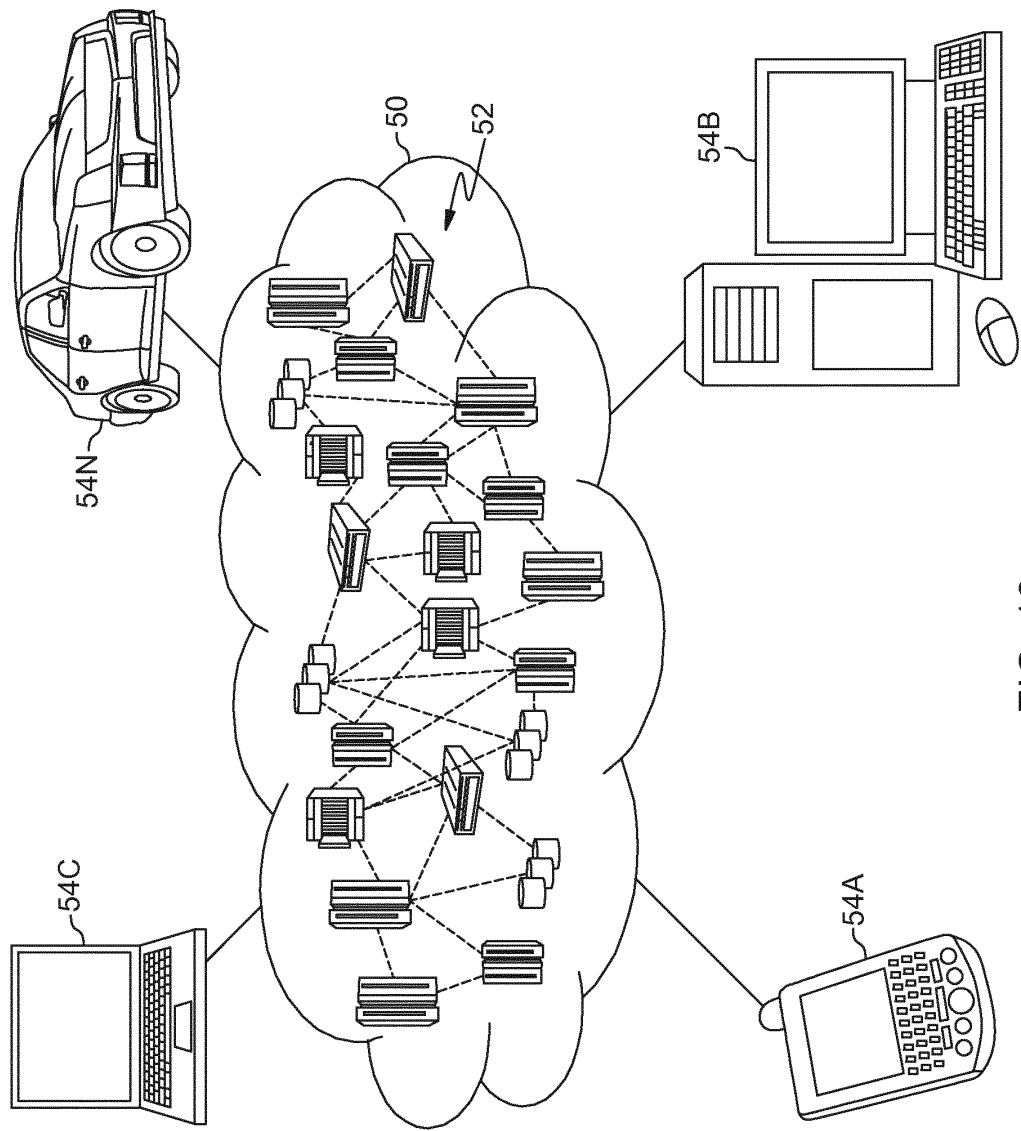


FIG. 13

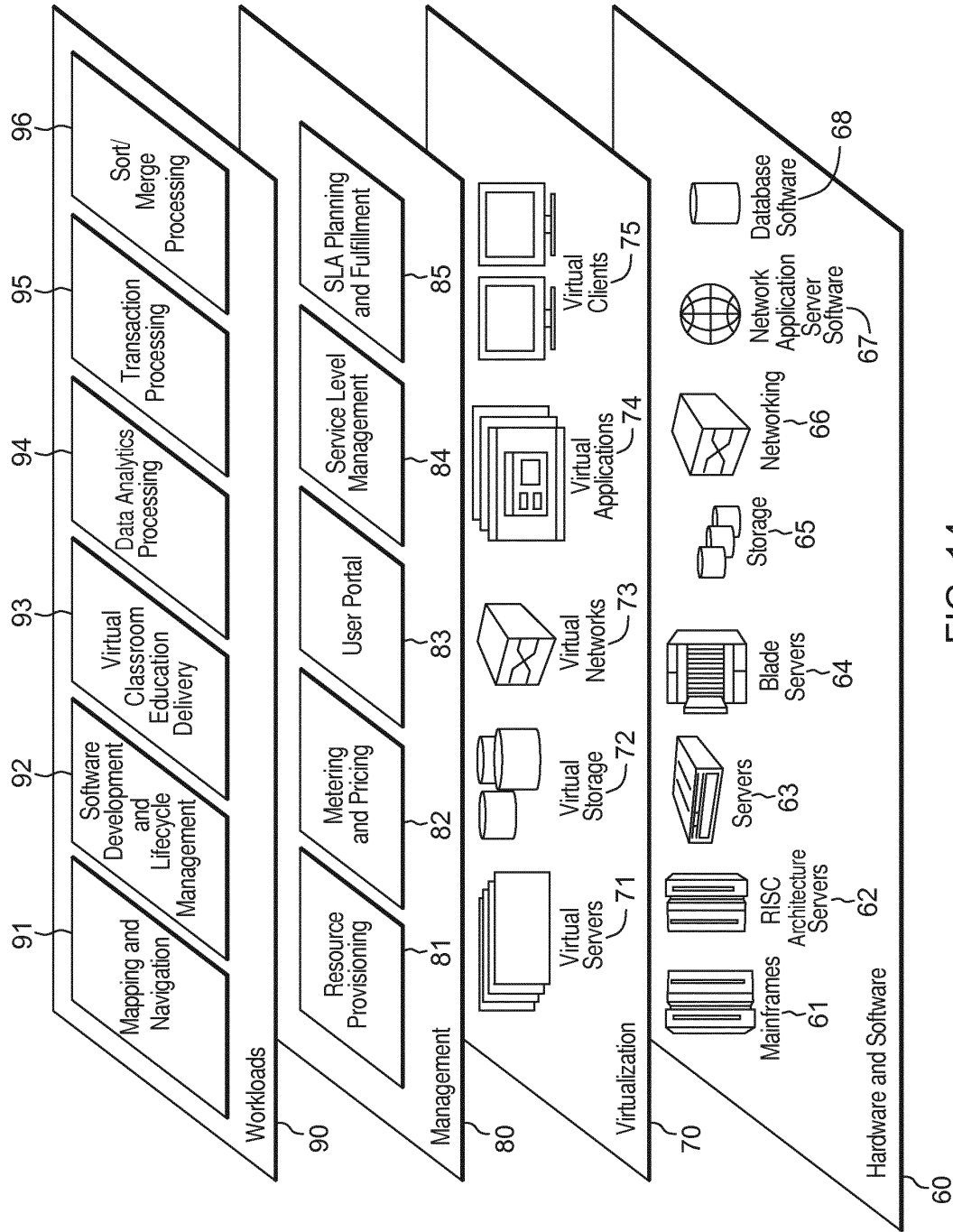


FIG. 14