

FIG. 1A

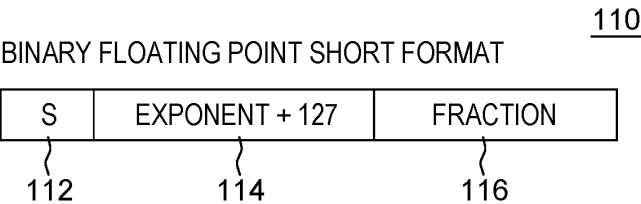


FIG. 1B

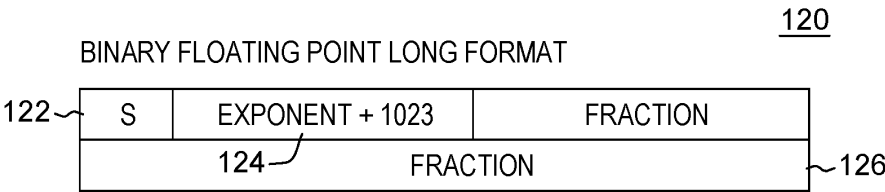


FIG. 1C

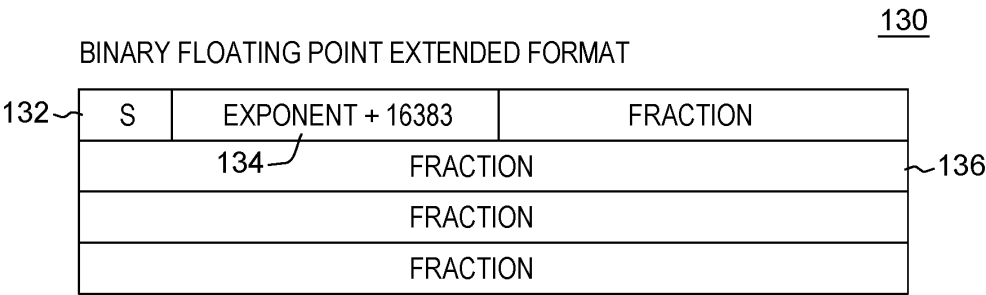


FIG. 1D

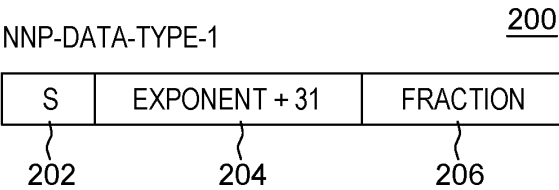


FIG. 2

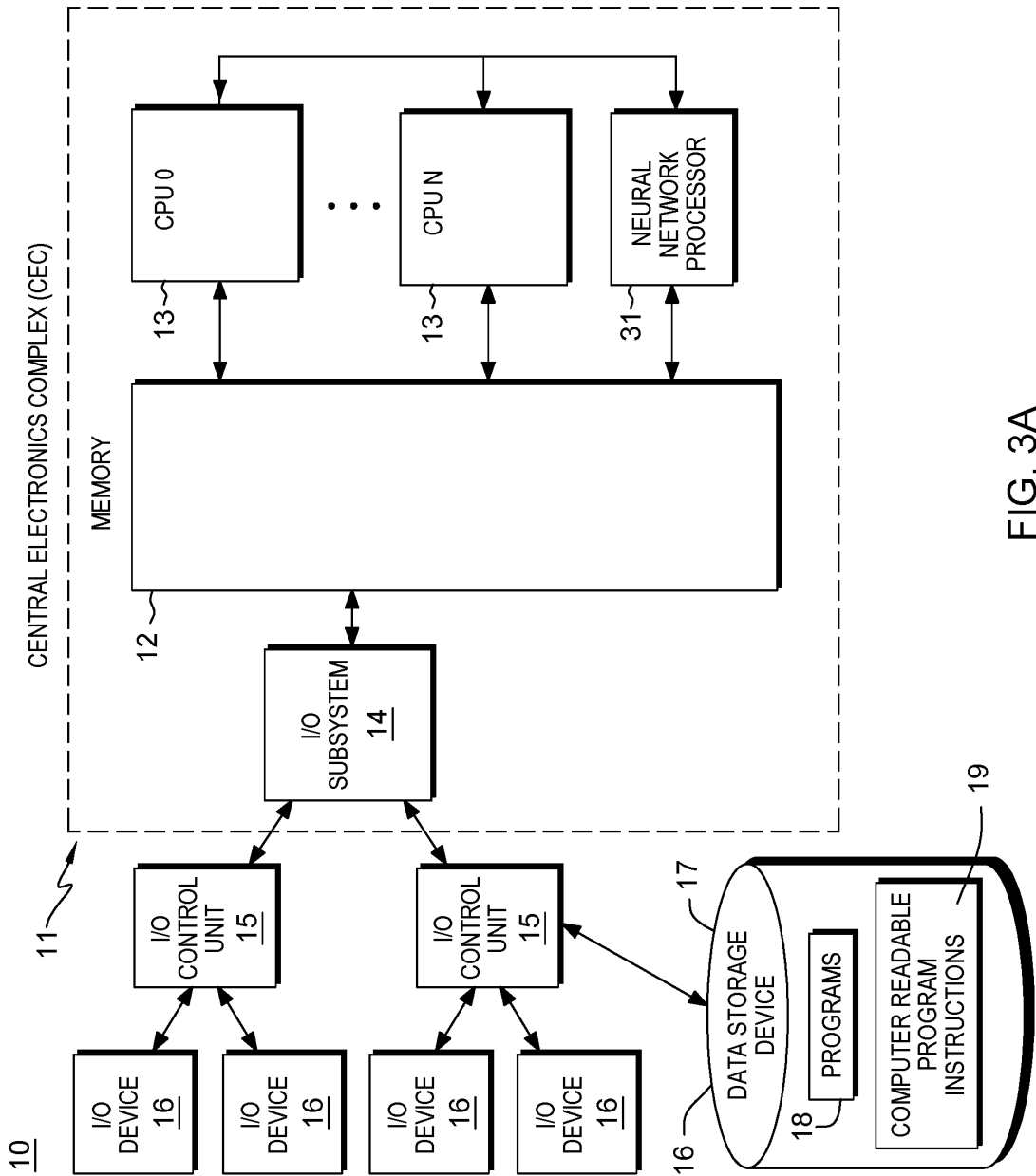


FIG. 3A

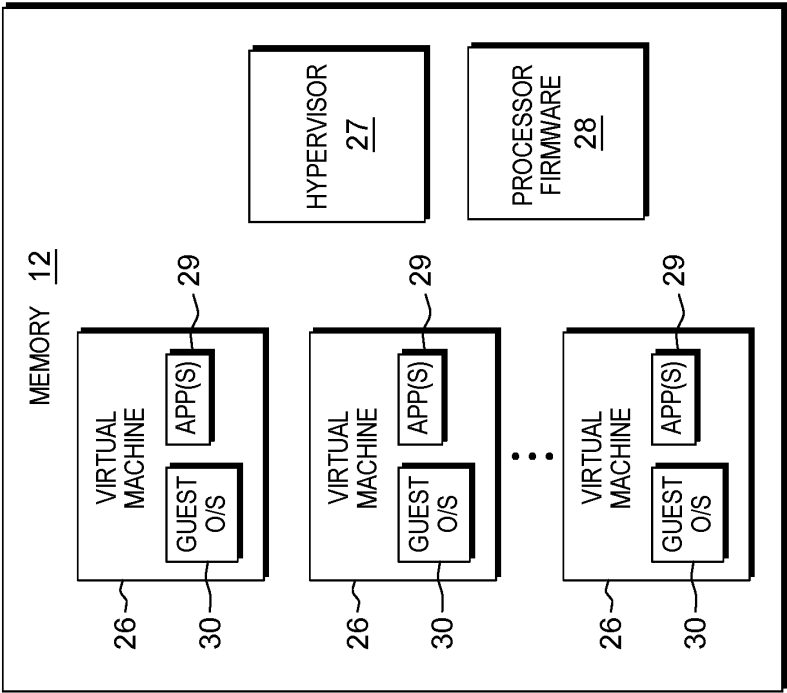


FIG. 3C

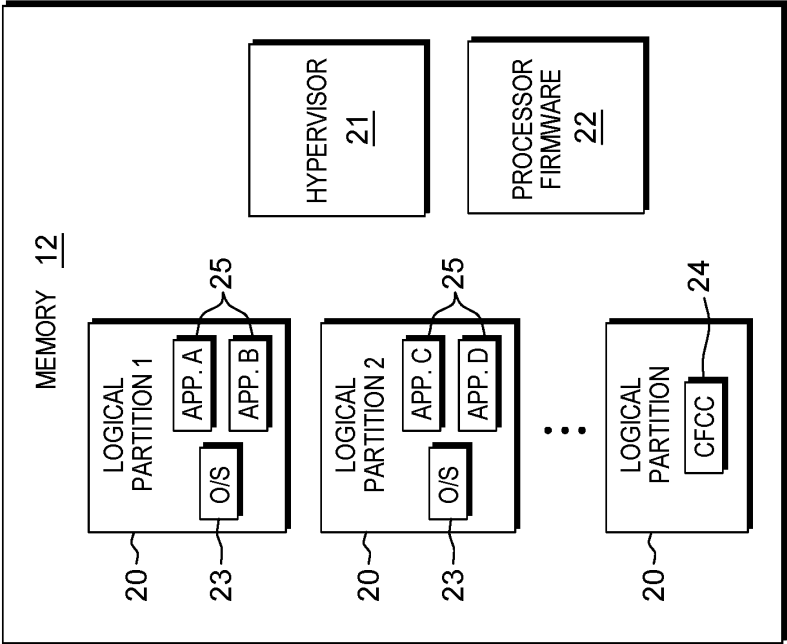


FIG. 3B

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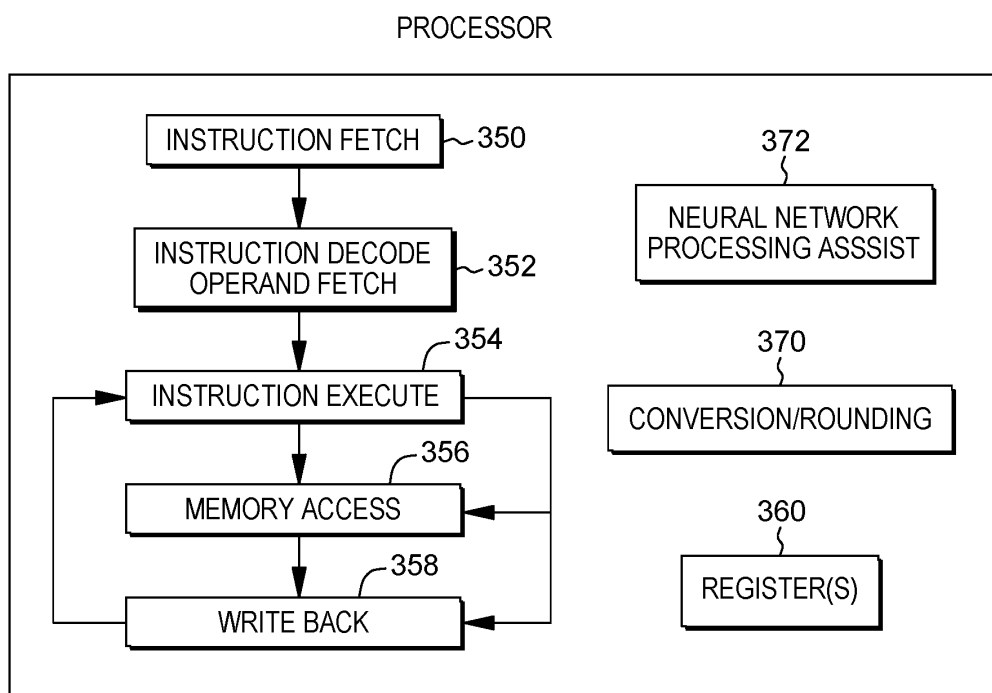


FIG. 3D

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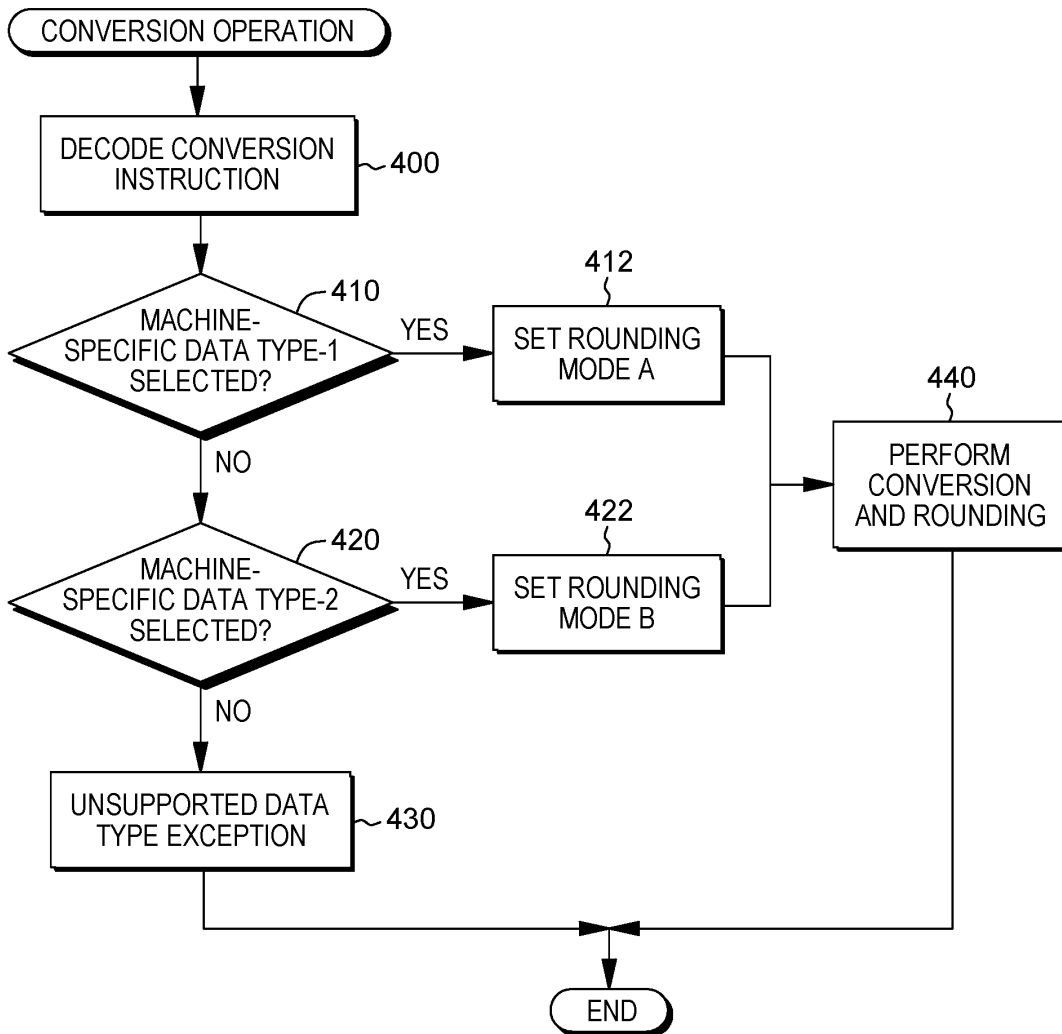


FIG. 4A

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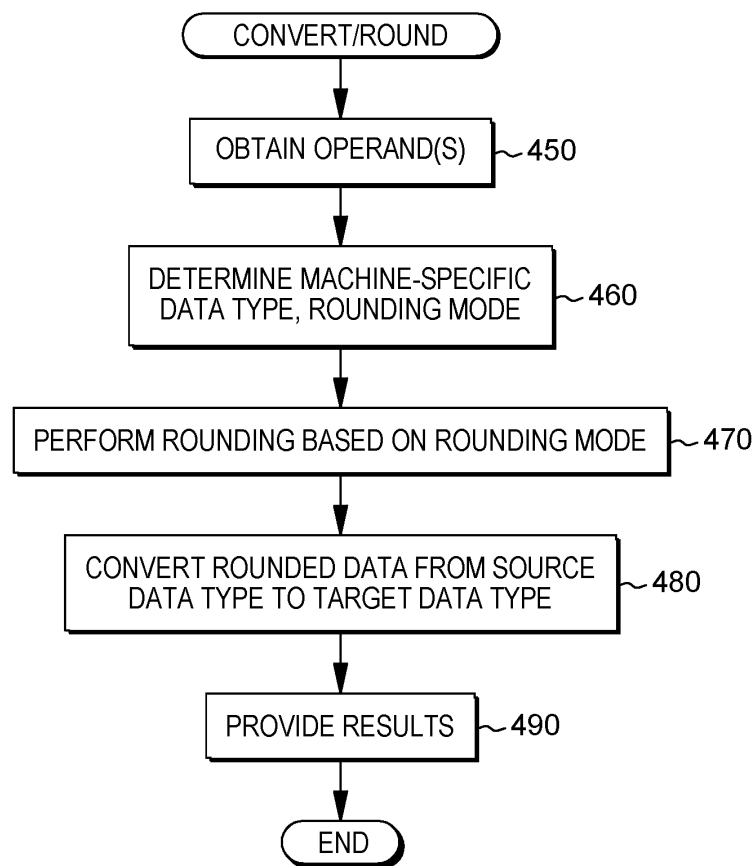


FIG. 4B

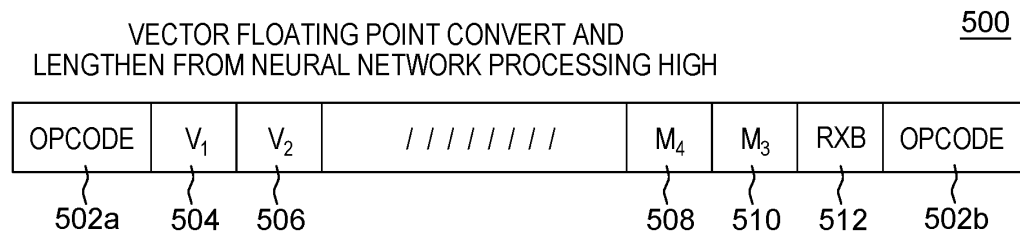


FIG. 5A

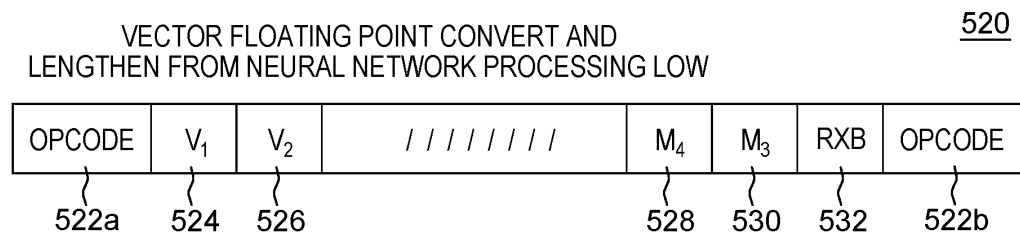


FIG. 5B

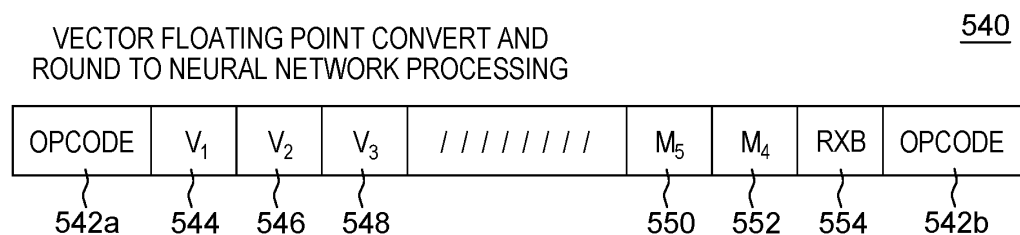


FIG. 5C

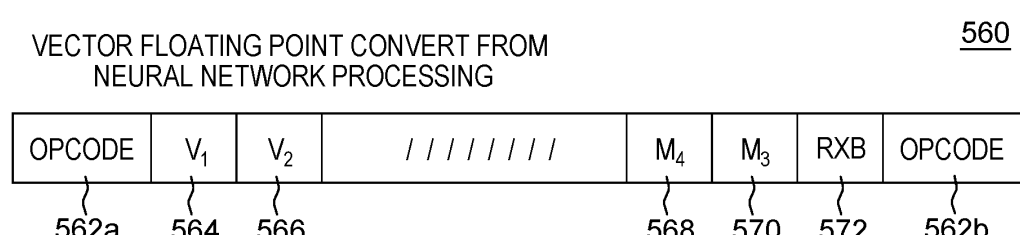


FIG. 5D

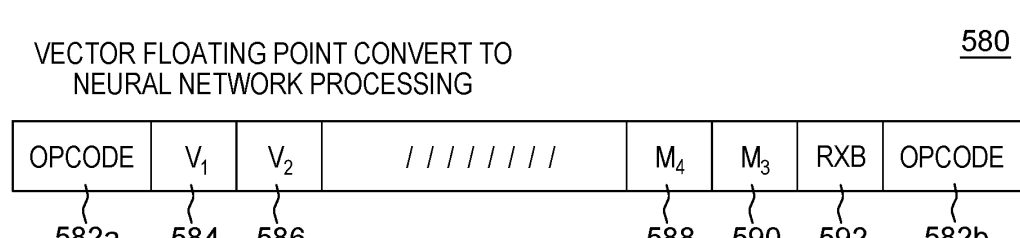


FIG. 5E

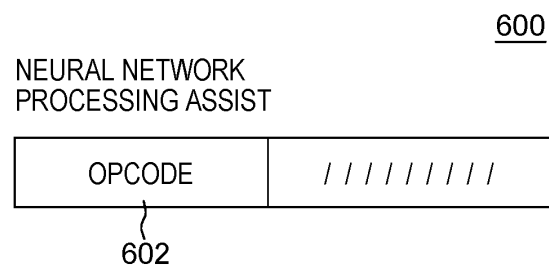


FIG. 6A

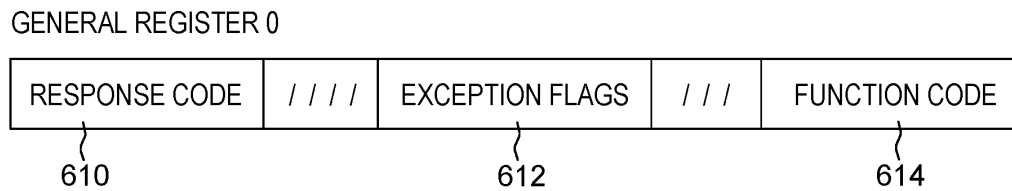


FIG. 6B

CODE (DEC)	CODE (HEX)	FUNCTION	PARAMETER BLOCK SIZE (BYTES)
0	0	NNPA - QAF	256
16	10	NNPA - ADD	4096
17	11	NNPA - SUB	4096
18	12	NNPA - MUL	4096
19	13	NNPA - DIV	4096
20	14	NNPA - MIN	4096
21	15	NNPA - MAX	4096
32	20	NNPA - LOG	4096
33	21	NNPA - EXP	4096
49	31	NNPA - RELU	4096
50	32	NNPA - TANH	4096
51	33	NNPA - SIGMOID	4096
52	34	NNPA - SOFTMAX	4096
64	40	NNPA - BATCHNORM	4096
80	50	NNPA - MAXPOOL2D	4096
81	51	NNPA - AVGPOOL2D	4096
96	60	NNPA - LSTMACT	4096
97	61	NNPA - GRUACT	4096
112	70	NNPA - CONVOLUTION	4096
113	71	NNPA - MATMUL-OP	4096
114	72	NNPA - MATMUL-OP-BCAST23	4096

FIG. 6C

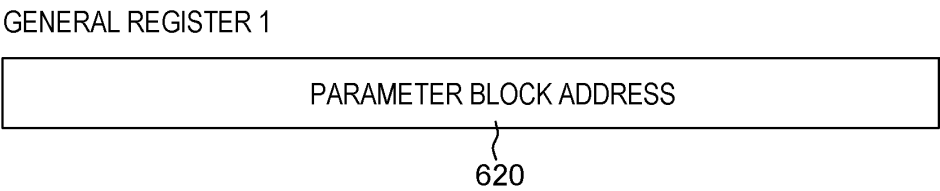


FIG. 6D

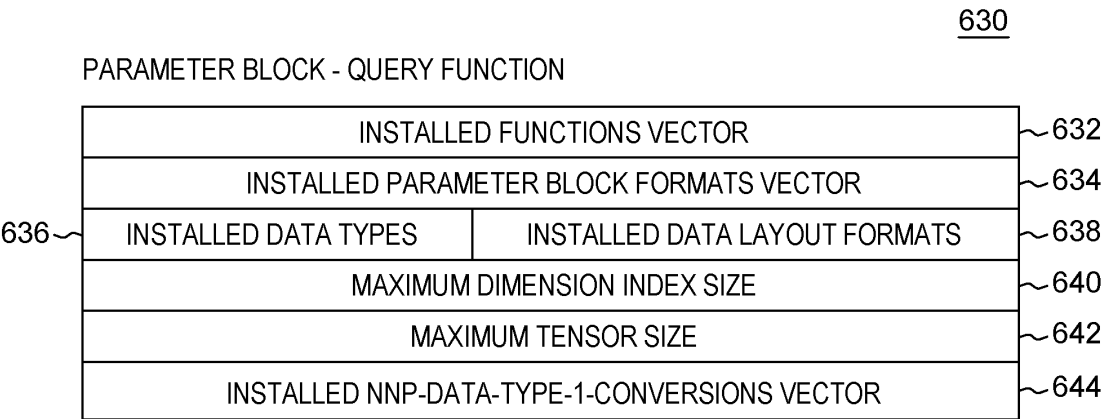


FIG. 6E

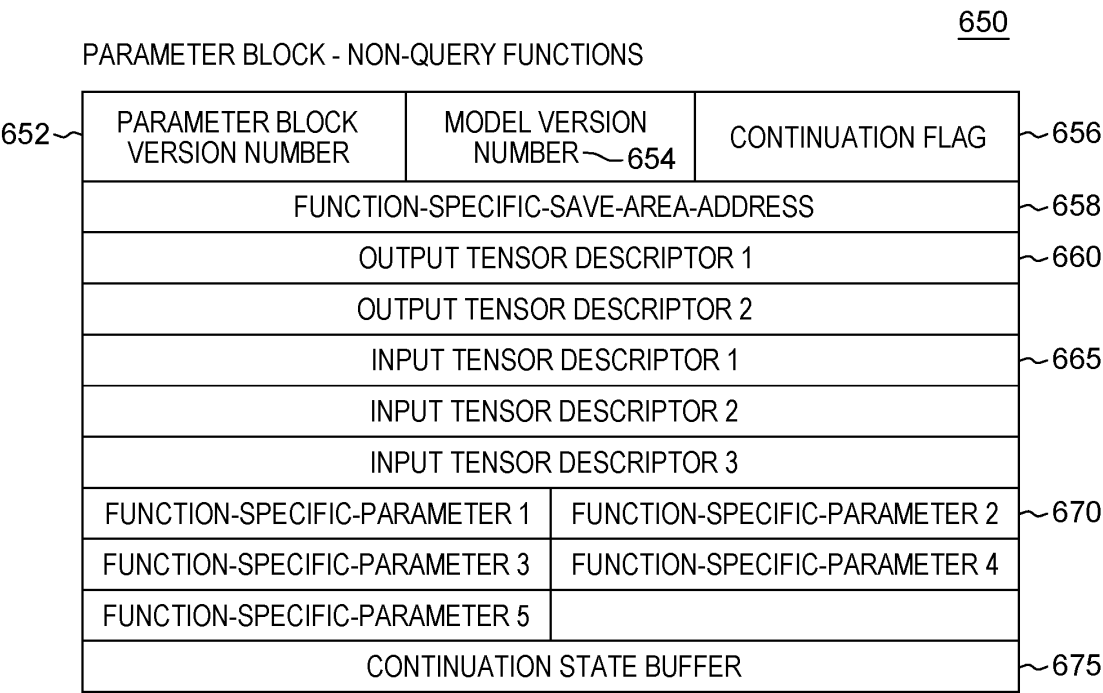


FIG. 6F

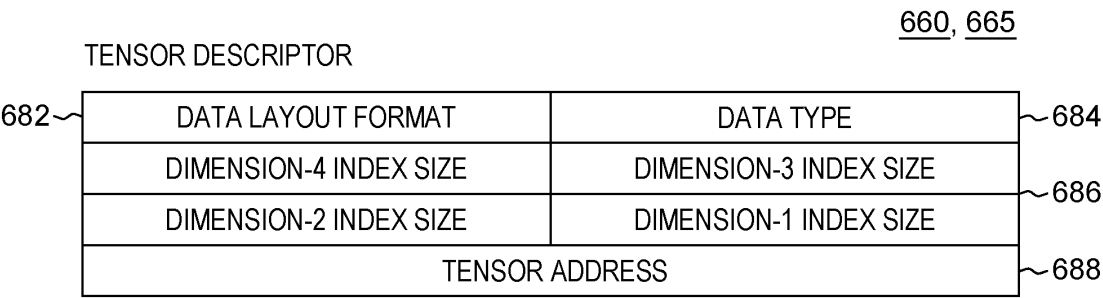
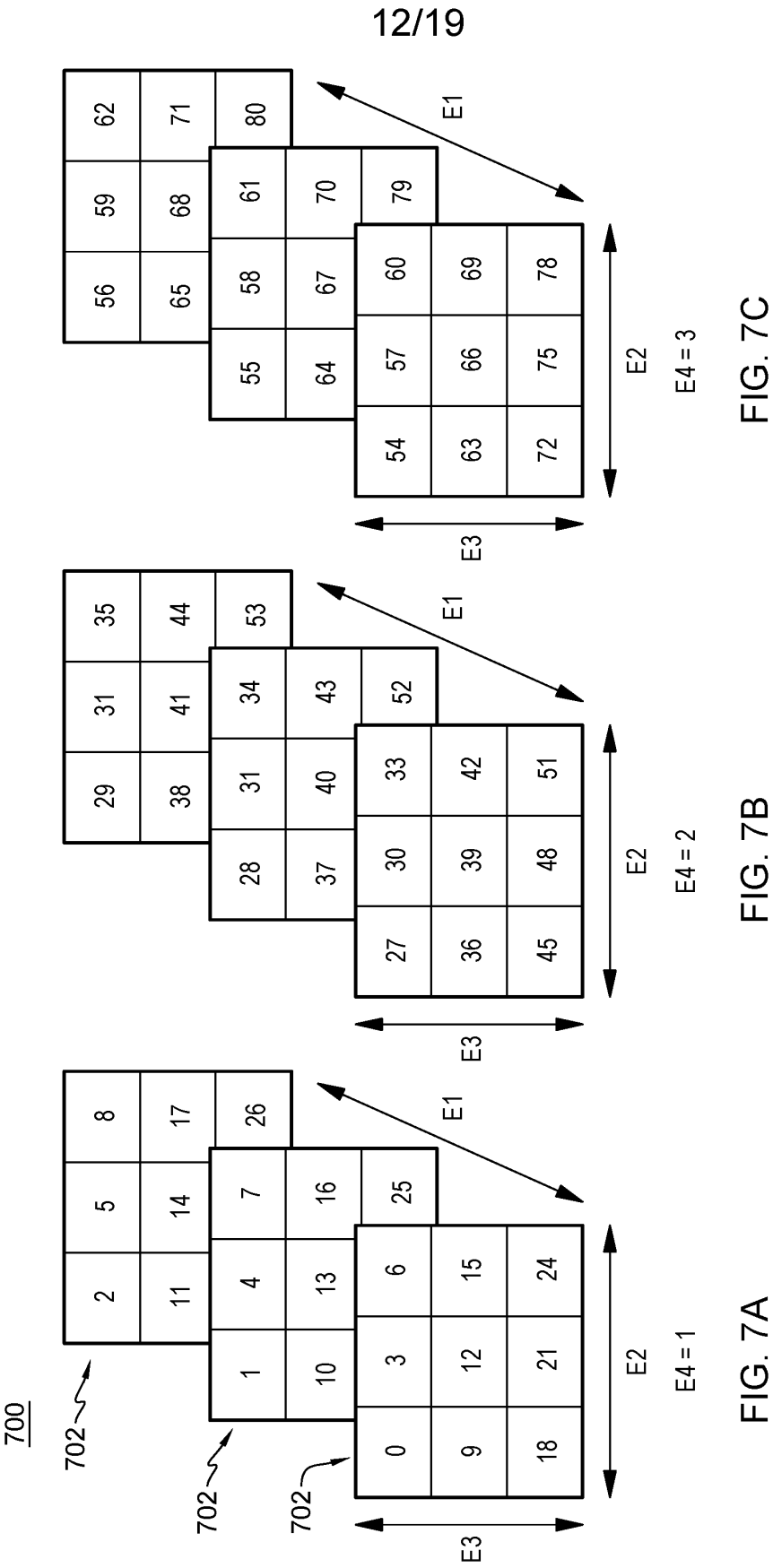


FIG. 6G



The diagram illustrates a memory layout divided into two main sections, E4 = 1 and E4 = 2, each containing four pages (PAGE 0 to PAGE 3 and PAGE 4 to PAGE 7).

E4 = 1 (Left Section):

- PAGE 0:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	0	1	2	PAD
1	3	4	5	PAD
2	6	7	8	PAD
3-31	PAD	PAD	PAD	PAD
- PAGE 1:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	9	10	11	PAD
1	12	13	14	PAD
2	15	16	17	PAD
3-31	PAD	PAD	PAD	PAD
- PAGE 2:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	18	19	20	PAD
1	21	22	23	PAD
2	24	25	26	PAD
3-31	PAD	PAD	PAD	PAD
- PAGE 3:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	27	28	29	PAD
1	30	31	32	PAD
2	33	34	35	PAD
3-31	PAD	PAD	PAD	PAD

E4 = 2 (Right Section):

- PAGE 4:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	36	37	38	PAD
1	39	40	41	PAD
2	42	43	44	PAD
3-31	PAD	PAD	PAD	PAD
- PAGE 5:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	45	46	47	PAD
1	48	49	50	PAD
2	51	52	53	PAD
3-31	PAD	PAD	PAD	PAD
- PAGE 6:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	54	55	56	PAD
1	57	58	59	PAD
2	60	61	62	PAD
3-31	PAD	PAD	PAD	PAD
- PAGE 7:**

e2_page_idx	e1_page_idx			
	0	1	2	3 to 63
0	63	64	65	PAD
1	66	67	68	PAD
2	69	70	71	PAD
3-31	PAD	PAD	PAD	PAD

Annotations:

- 800:** Points to the e2_page_idx column in PAGE 0.
- 802:** Points to the first row (e2_page_idx = 0) in PAGE 0.
- 804:** Points to the e1_page_idx header in PAGE 0.
- 806:** Points to the first row (e2_page_idx = 0) in PAGE 0.
- 808:** Points to the last row (e2_page_idx = 3-31) in PAGE 0.

FIG. 8A

FIG. 8B

FIG. 8C

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OBTAIN AN INSTRUCTION TO CONVERT DATA FROM A SOURCE DATA TYPE TO A TARGET DATA TYPE ~900

THE SOURCE DATA TYPE IS SELECTED FROM ONE OR MORE SOURCE DATA TYPES SUPPORTED BY THE INSTRUCTION ~902

THE TARGET DATA TYPE IS SELECTED FROM ONE OR MORE TARGET DATA TYPES SUPPORTED BY THE INSTRUCTION ~904

BASED ON A SELECTED DATA TYPE OF ONE OF THE SOURCE DATA TYPE AND THE TARGET DATA TYPE, A DETERMINATION IS MADE OF A ROUNDING MODE FOR USE BY THE INSTRUCTION ~906

THE ROUNDING MODE IS IMPLICITLY SET BASED ON THE SELECTED DATA TYPE ~908

THE ROUNDING MODE IS ASSIGNED TO THE SELECTED DATA TYPE ~910

A CONVERSION OF THE DATA FROM THE SOURCE DATA TYPE TO THE TARGET DATA TYPE IS PERFORMED ~912

THE CONVERSION INCLUDES PERFORMING A ROUNDING OPERATION USING THE ROUNDING MODE IMPLICITLY SET BASED ON THE SELECTED DATA TYPE ~914

THE PERFORMING THE CONVERSION PROVIDES A RESULT IN THE TARGET DATA TYPE ~916

WRITE THE RESULT TO A SELECT LOCATION ~918

THE SELECTED DATA TYPE IS THE TARGET DATA TYPE SPECIFIED USING THE INSTRUCTION ~920

THE TARGET DATA TYPE IS A MACHINE-SPECIFIC DATA TYPE SPECIFIED USING THE INSTRUCTION ~922

THE MACHINE-SPECIFIC DATA TYPE IS A NEURAL NETWORK PROCESSING-DATA-TYPE-1 DATA TYPE ~924

THE ROUNDING MODE ASSIGNED TO THE NEURAL NETWORK PROCESSING-DATA-TYPE-1 DATA TYPE IS A ROUND TO NEAREST TIES AWAY FROM ZERO ~926

THE SOURCE DATA TYPE IS A STANDARD DATA TYPE SPECIFIED USING THE INSTRUCTION ~928

FIG. 9A

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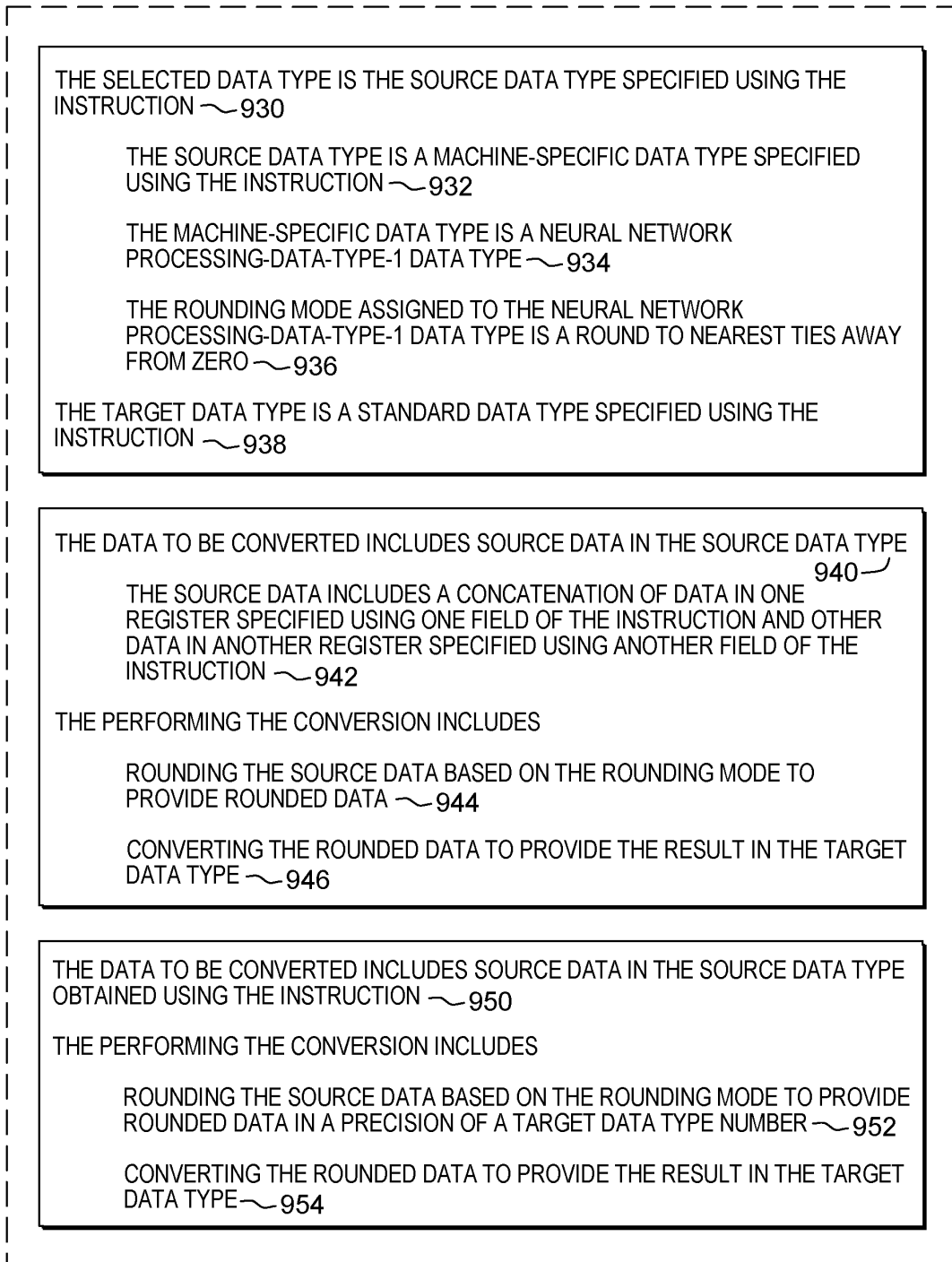


FIG. 9B

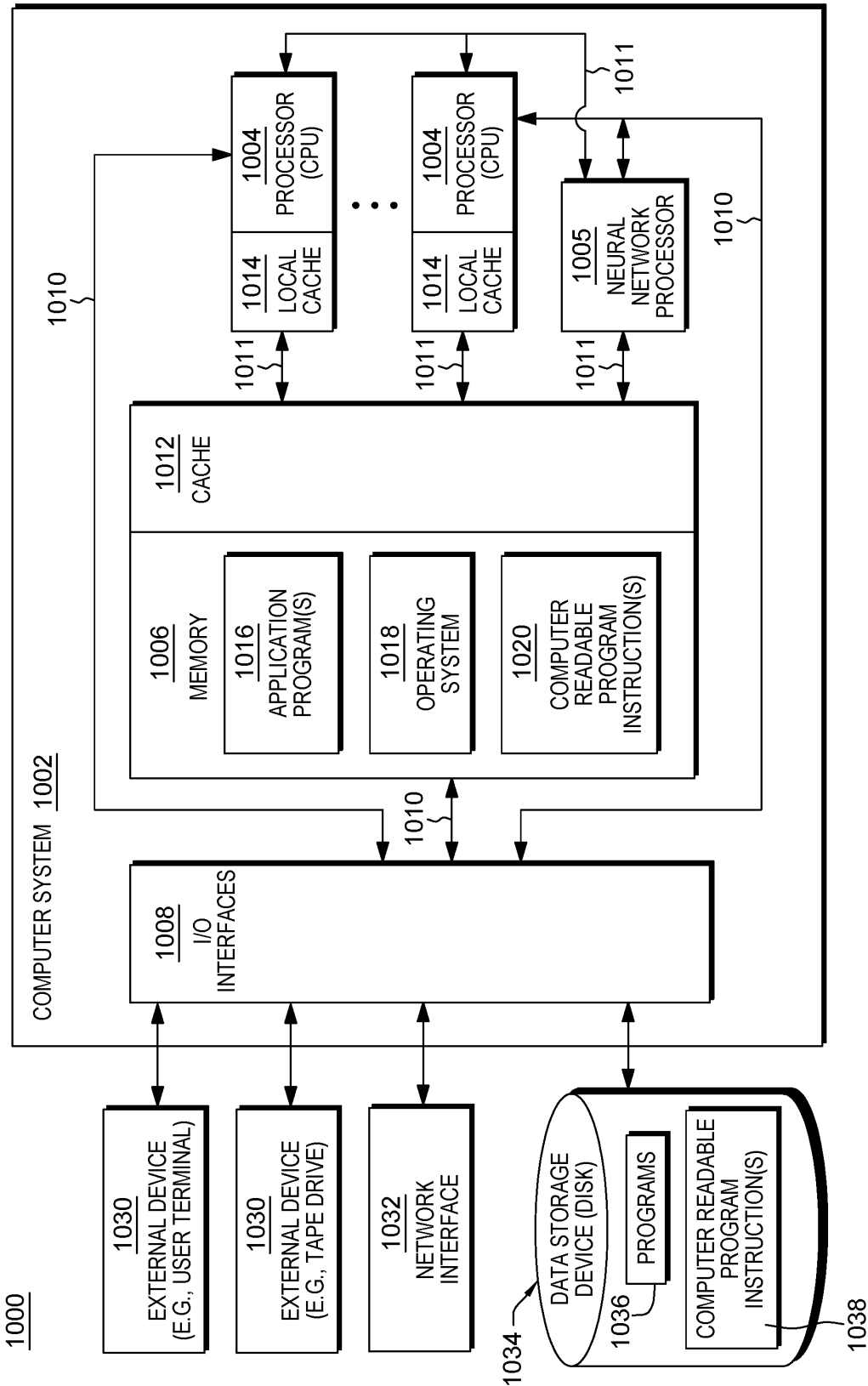


FIG. 10

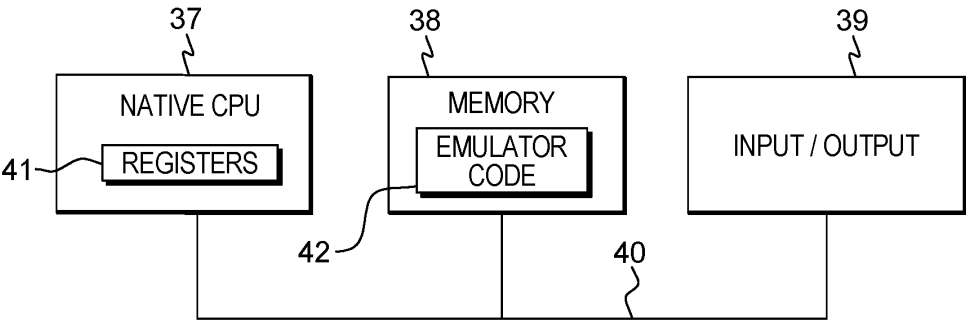


FIG. 11A

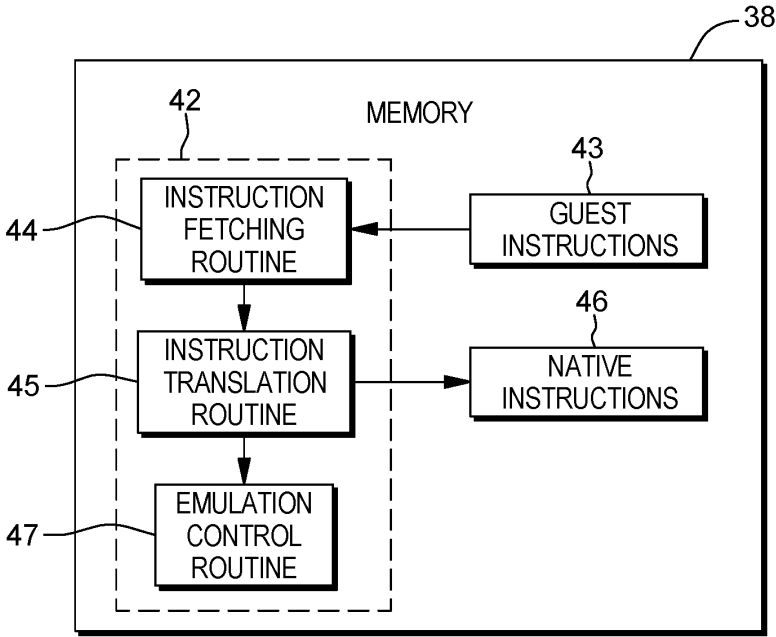


FIG. 11B

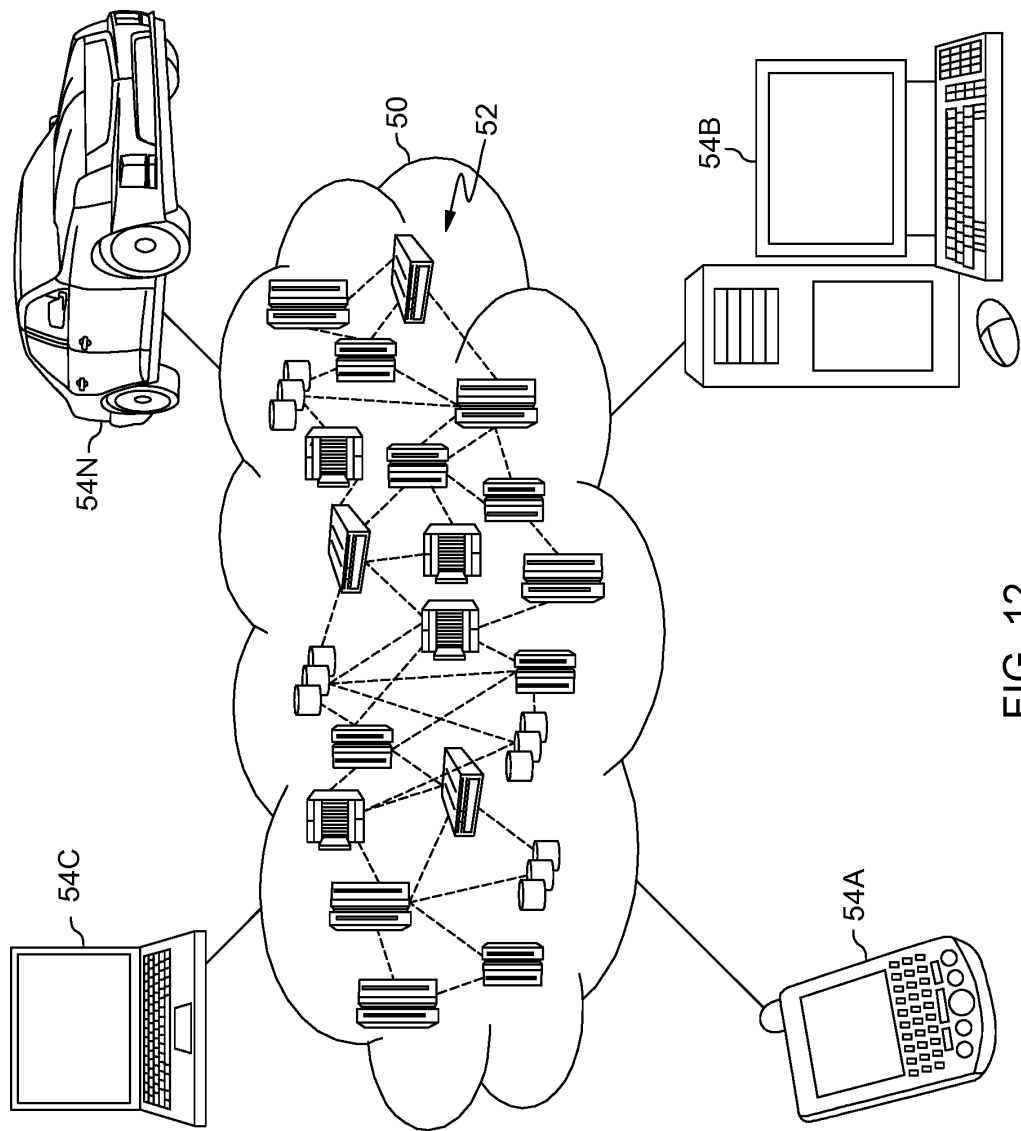


FIG. 12

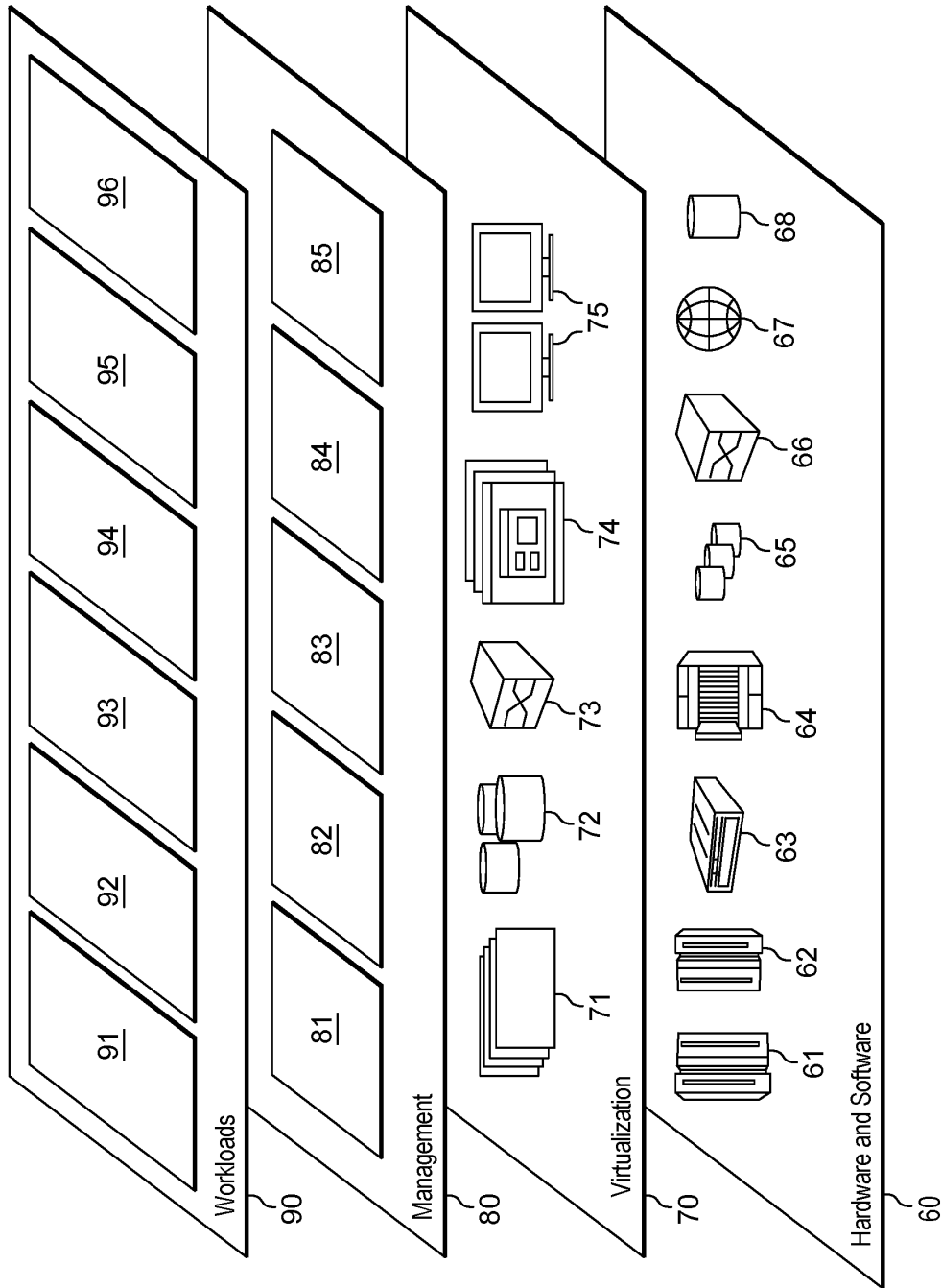


FIG. 13