

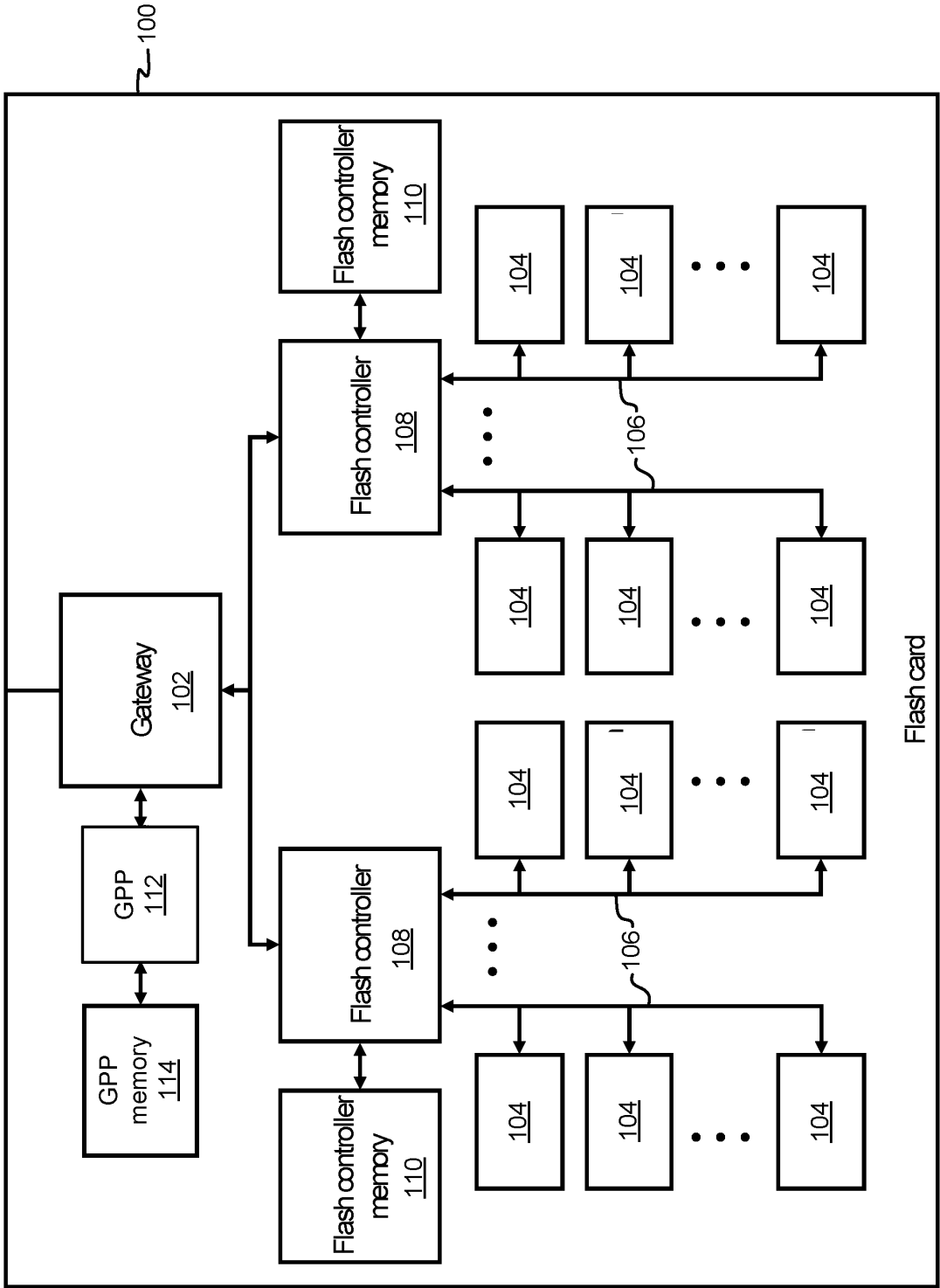


FIG. 1

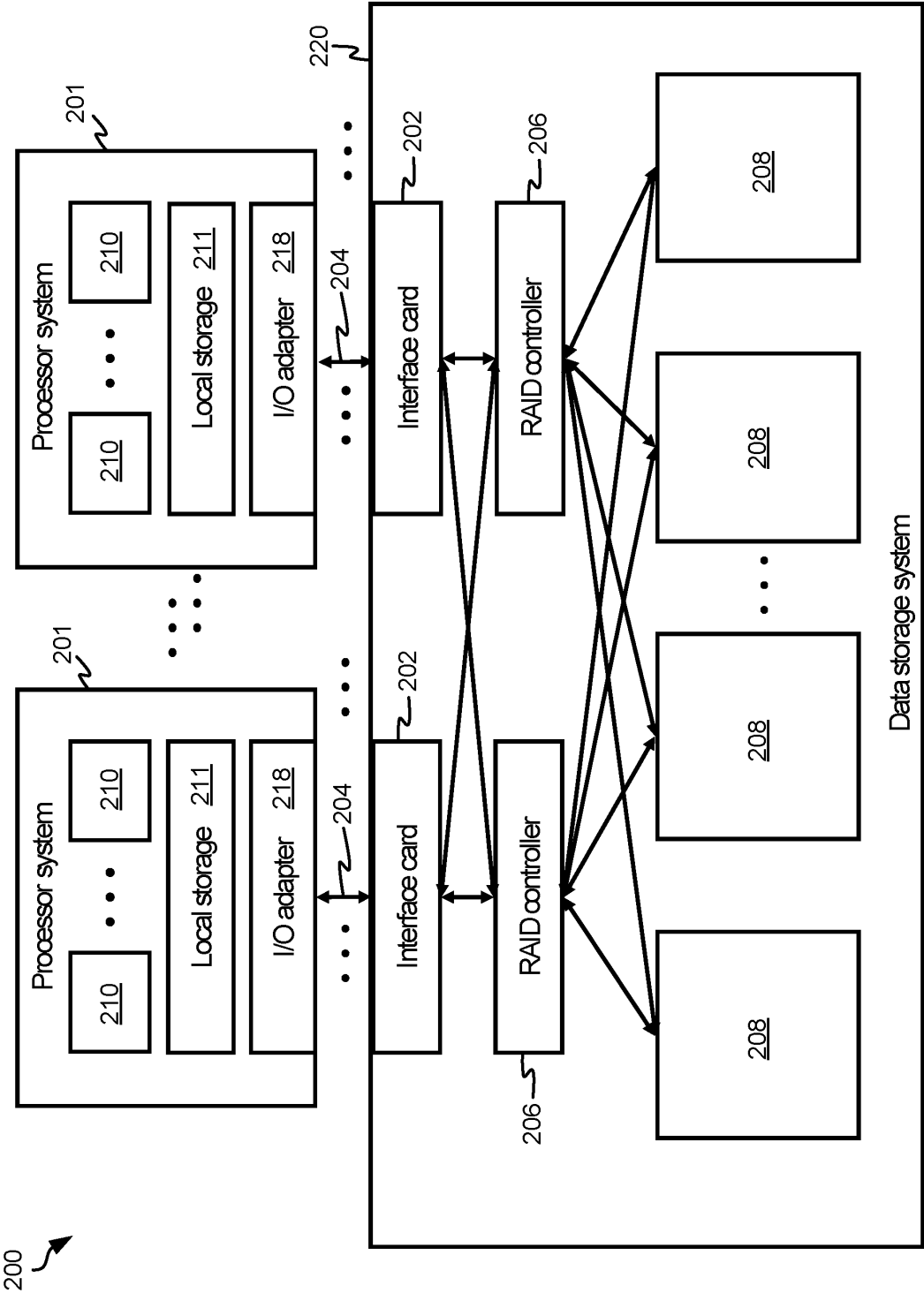
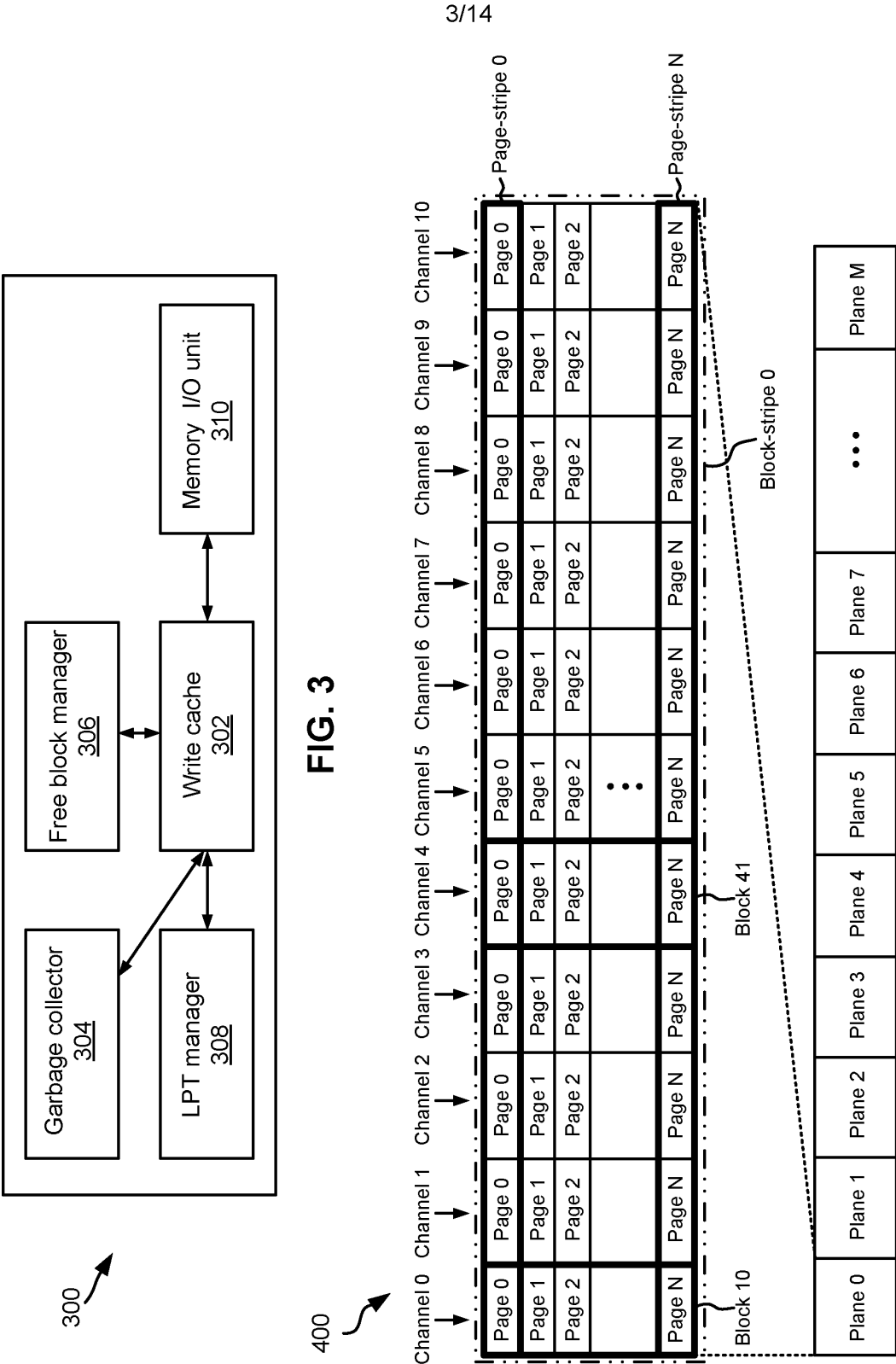


FIG. 2



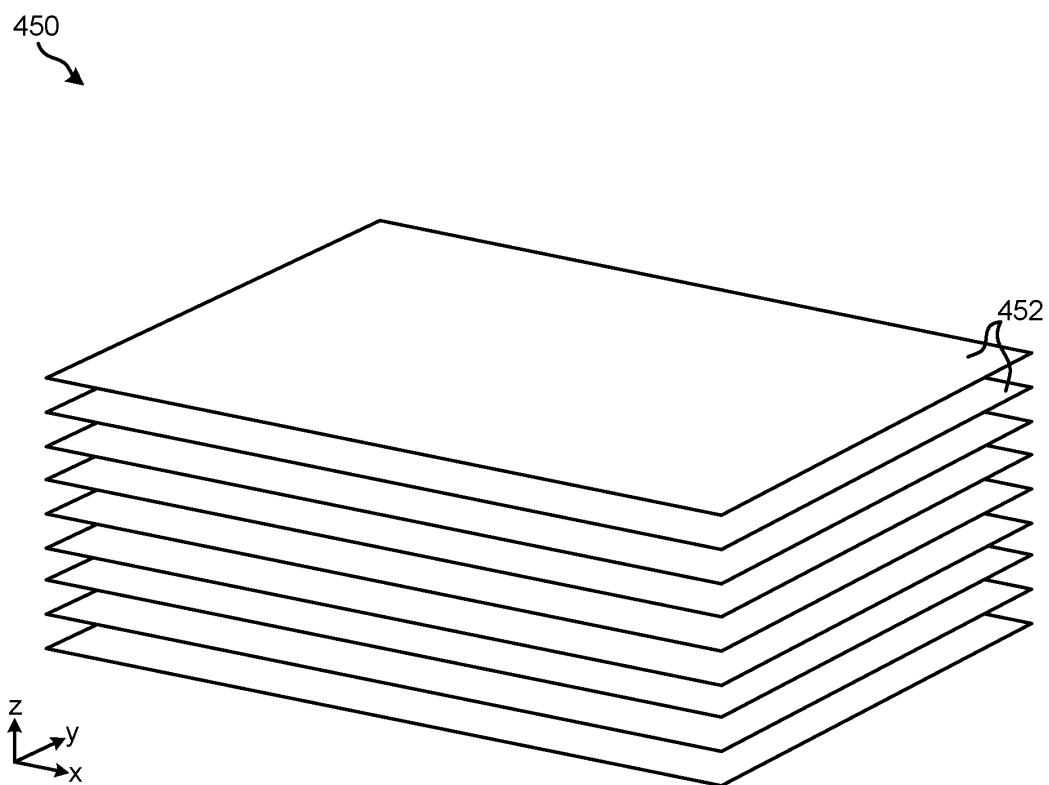


FIG. 4B

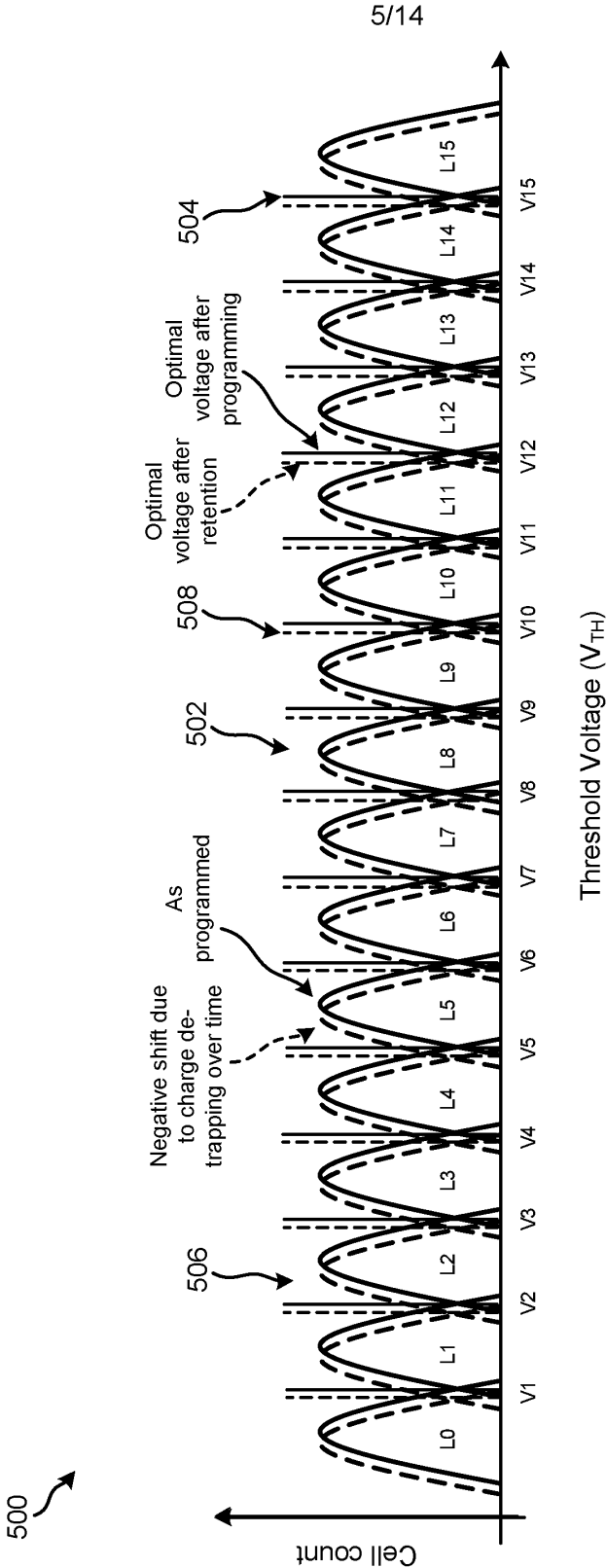


FIG. 5

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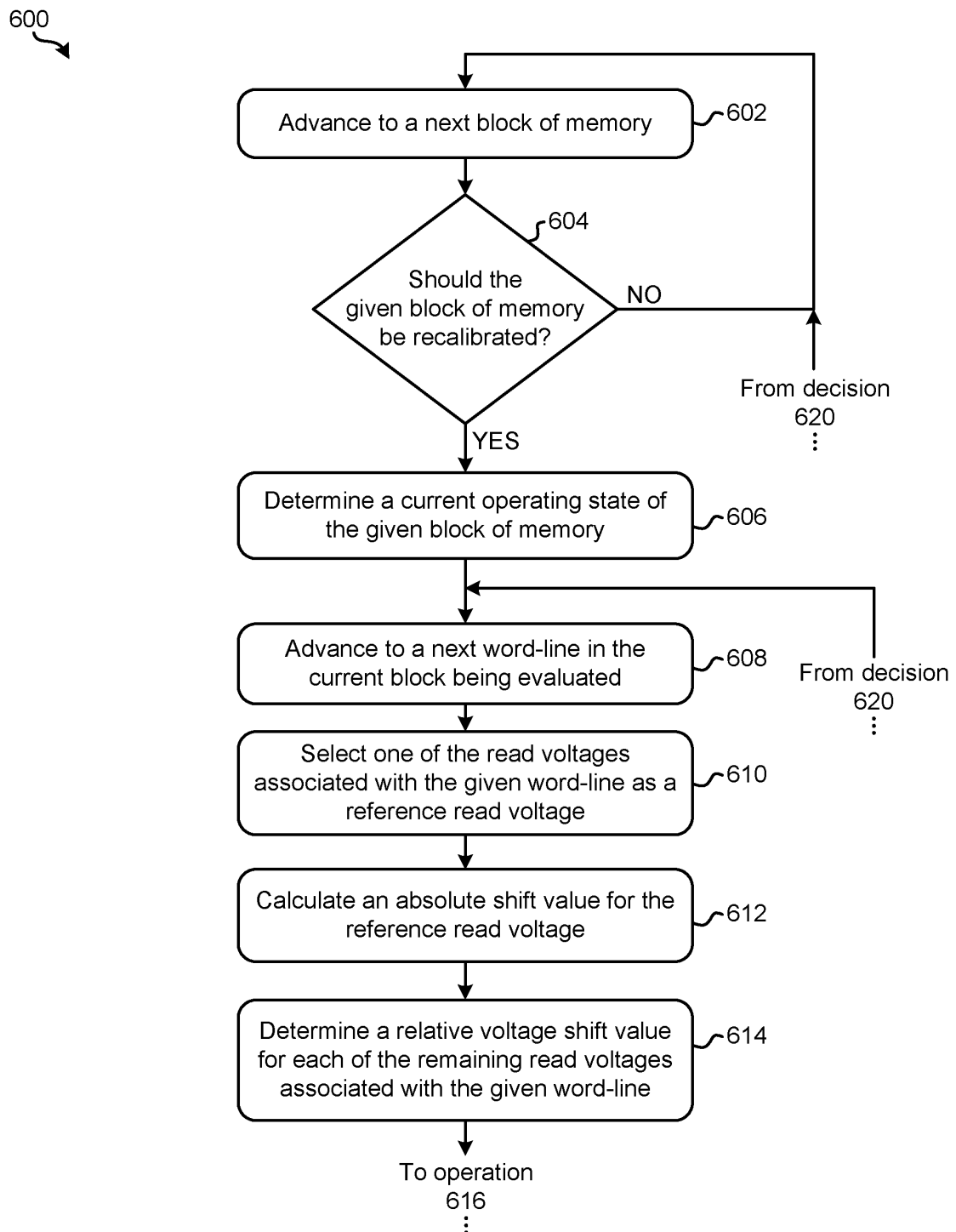


FIG. 6A

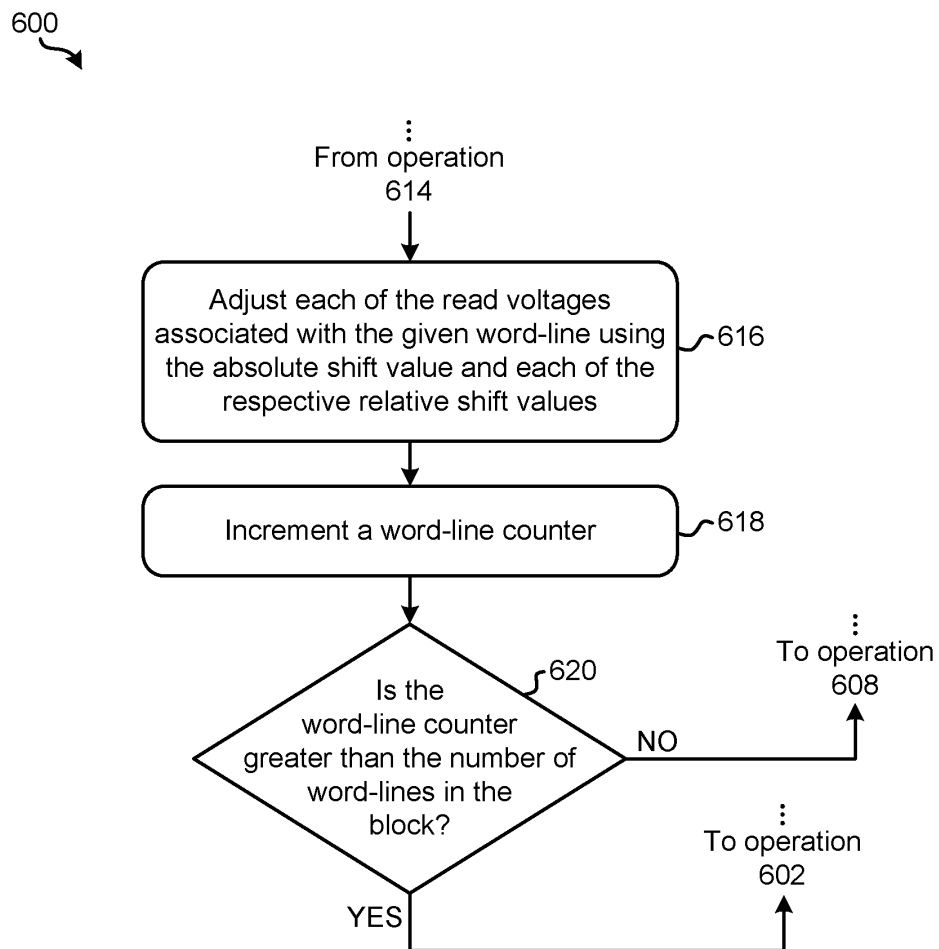


FIG. 6A
(Continued)

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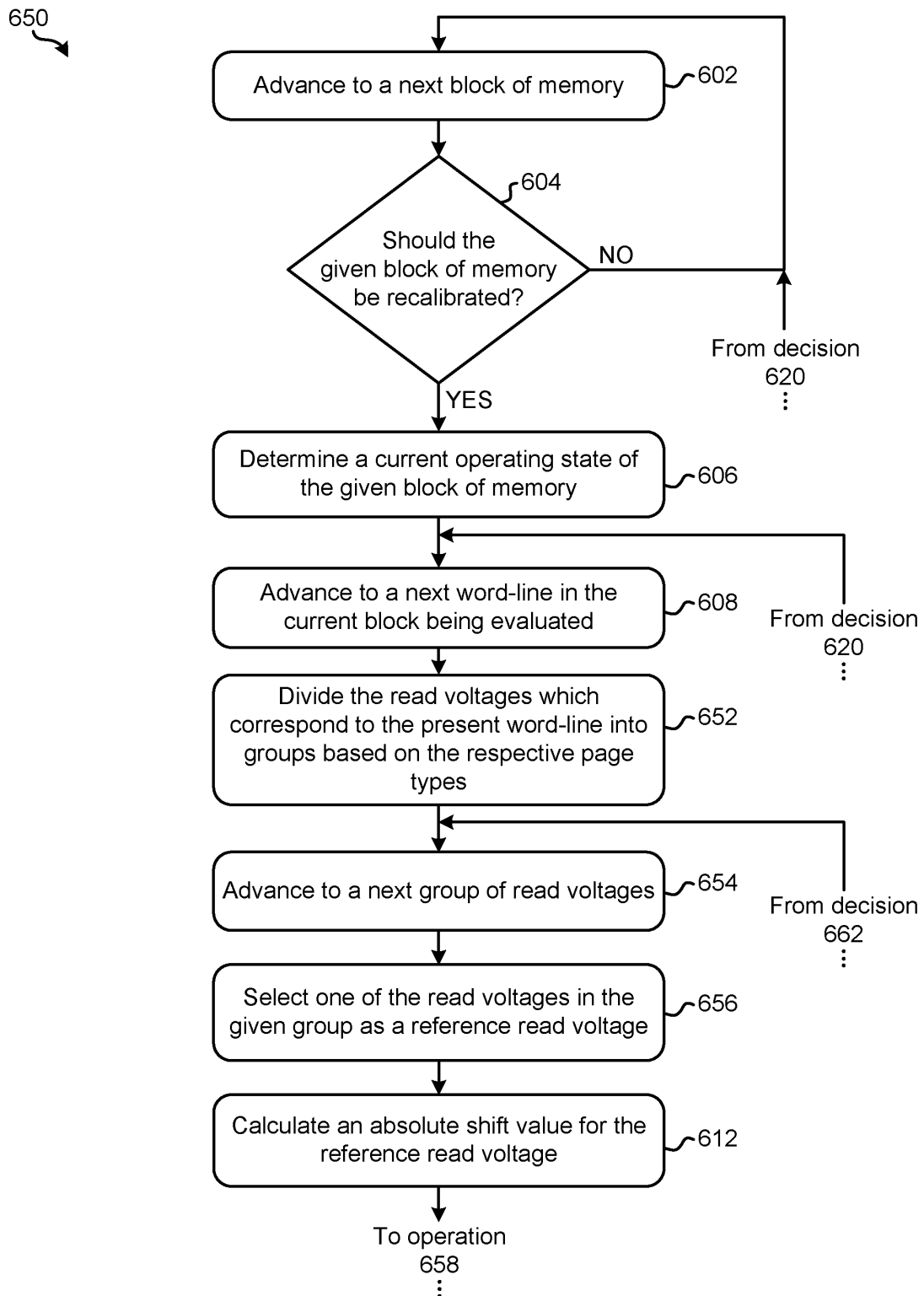


FIG. 6B

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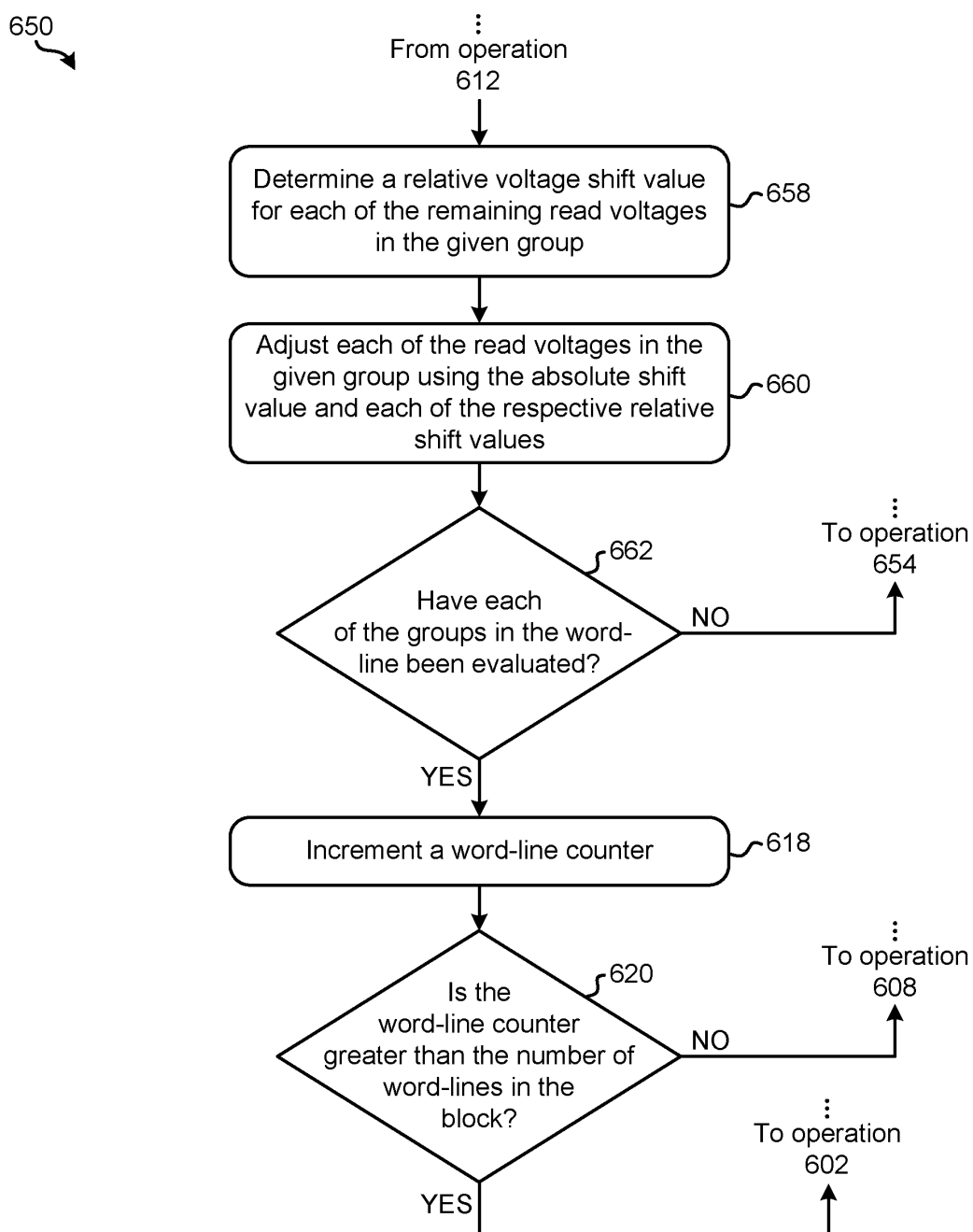


FIG. 6B
(Continued)

700

States	Program/Erase Cycles	Retention Time	Read-disturb Cycles	Temperature
s_1	0 - 1000 cycles	0 hrs	0 cycles	40C
s_2	1000 - 2000 cycles	0 hrs	0 cycles	40C
...	...	...	...	...
s_{k+1}	0 - 1000 cycles	0 - 24 hrs	0 cycles	40C
s_{k+2}	1000 - 2000 cycles	0 - 24 hrs	0 cycles	40C
...	...	...	...	...
s_{m+1}	0 - 1000 cycles	1*24 - 7*24 hrs	0 cycles	40C
s_{m+2}	1000 - 2000 cycles	1*24 - 7*24 hrs	0 cycles	40C
...	...	...	...	...
s_{i+1}	0 - 1000 cycles	1*7*24 - 4*7*24 hrs	0 cycles	40C
s_{i+2}	1000 - 2000 cycles	1*7*24 - 4*7*24 hrs	0 cycles	40C
...	...	...	...	...
s_{j+1}	0 - 1000 cycles	0 hrs	0 - 1000 cycles	40C
s_{j+2}	1000 - 2000 cycles	0 hrs	0 - 1000 cycles	40C
...	...	...	...	...
s_{t+1}	0 - 1000 cycles	0 - 24 hrs	0 - 1000 cycles	40C
s_{t+2}	1000 - 2000 cycles	0 - 24 hrs	0 - 1000 cycles	40C
...	...	...	...	...

FIG. 7

800 ↗

ALL	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15 reference
s1	a(1,1)	a(1,2)	a(1,3)	a(1,4)	a(1,5)	a(1,6)	a(1,7)	a(1,8)	a(1,9)	a(1,10)	a(1,11)	a(1,12)	a(1,13)	a(1,14)	a(1,15)
s2	a(2,1)	a(2,2)	a(2,3)	a(2,4)	a(2,5)	a(2,6)	a(2,7)	a(2,8)	a(2,9)	a(2,10)	a(2,11)	a(2,12)	a(2,13)	a(2,14)	a(2,15)
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
sN	a(N,1)	a(N,2)	a(N,3)	a(N,4)	a(N,5)	a(N,6)	a(N,7)	a(N,8)	a(N,9)	a(N,10)	a(N,11)	a(N,12)	a(N,13)	a(N,14)	a(N,15)

FIG. 8A

830 ↗ 840 ↗ 850 ↗

LP	V8 reference
s1	a(1,8)
s2	a(2,8)
...	...
sN	a(N,8)

UP	V4	V12 reference
s1	a(1,4)	a(1,12)
s2	a(2,4)	a(2,12)
...	...	...
sN	a(N,4)	a(N,12)

XP	V2	V6	V10	V14 reference
s1	a(1,2)	a(1,6)	a(1,10)	a(1,14)
s2	a(2,2)	a(2,6)	a(2,10)	a(2,14)
...	...	...	...	...
sN	a(N,2)	a(N,6)	a(N,10)	a(N,14)

860 ↗

TP	V1	V3	V5	V7	V9	V11	V13	V15 reference
s1	a(1,1)	a(1,3)	a(1,5)	a(1,7)	a(1,9)	a(1,11)	a(1,13)	a(1,15)
s2	a(2,1)	a(2,3)	a(2,5)	a(2,7)	a(2,9)	a(2,11)	a(2,13)	a(2,15)
...	...	...	...	...	...	...	...	...
sN	a(N,1)	a(N,3)	a(N,5)	a(N,7)	a(N,9)	a(N,11)	a(N,13)	a(N,15)

FIG. 8B

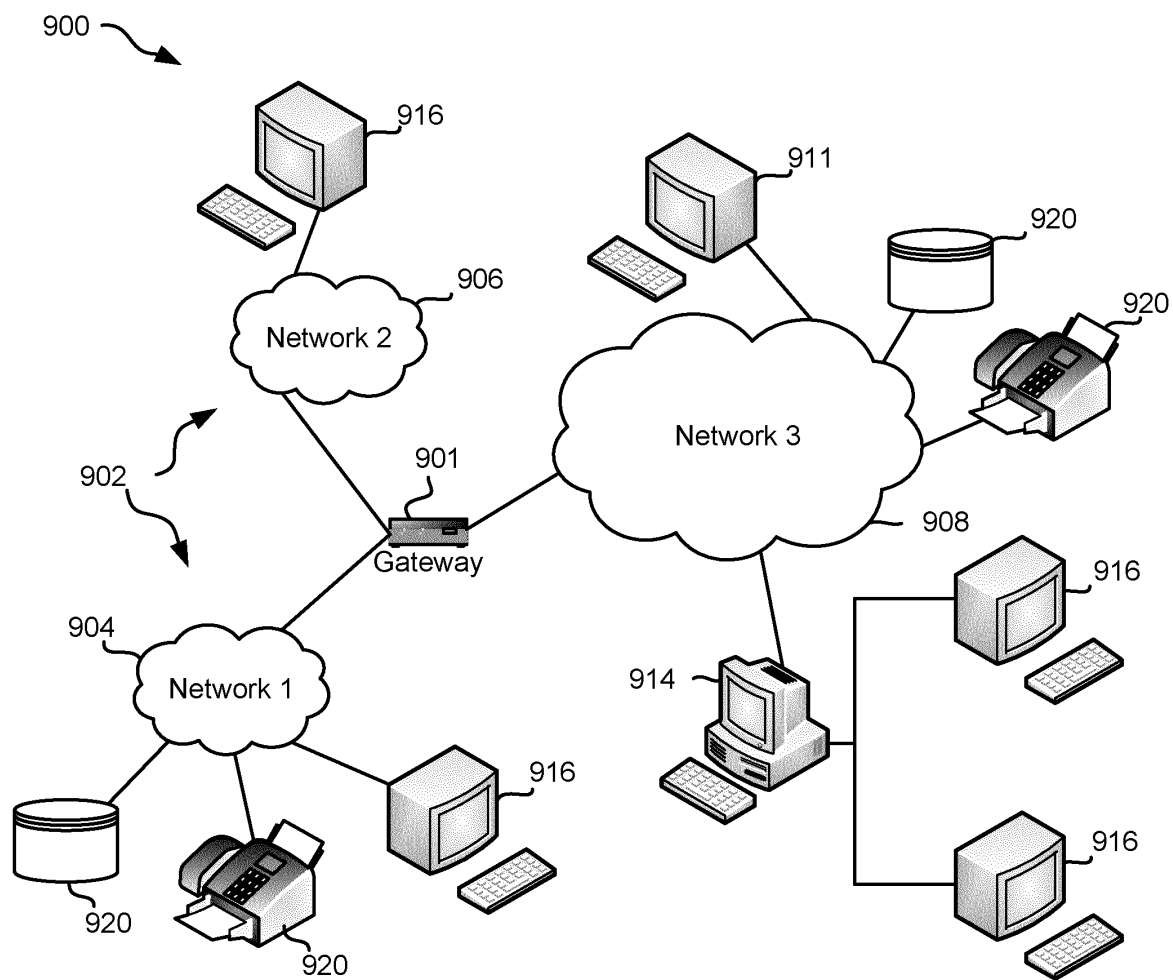


FIG. 9

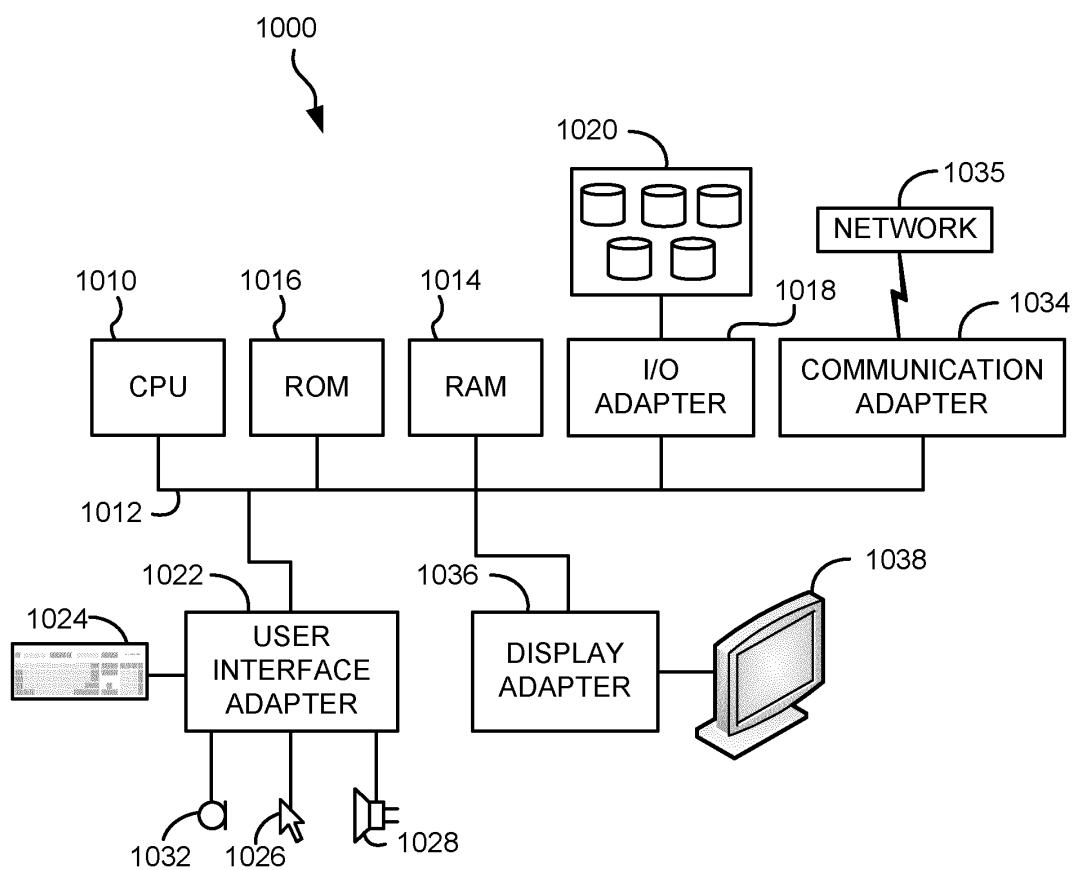


FIG. 10

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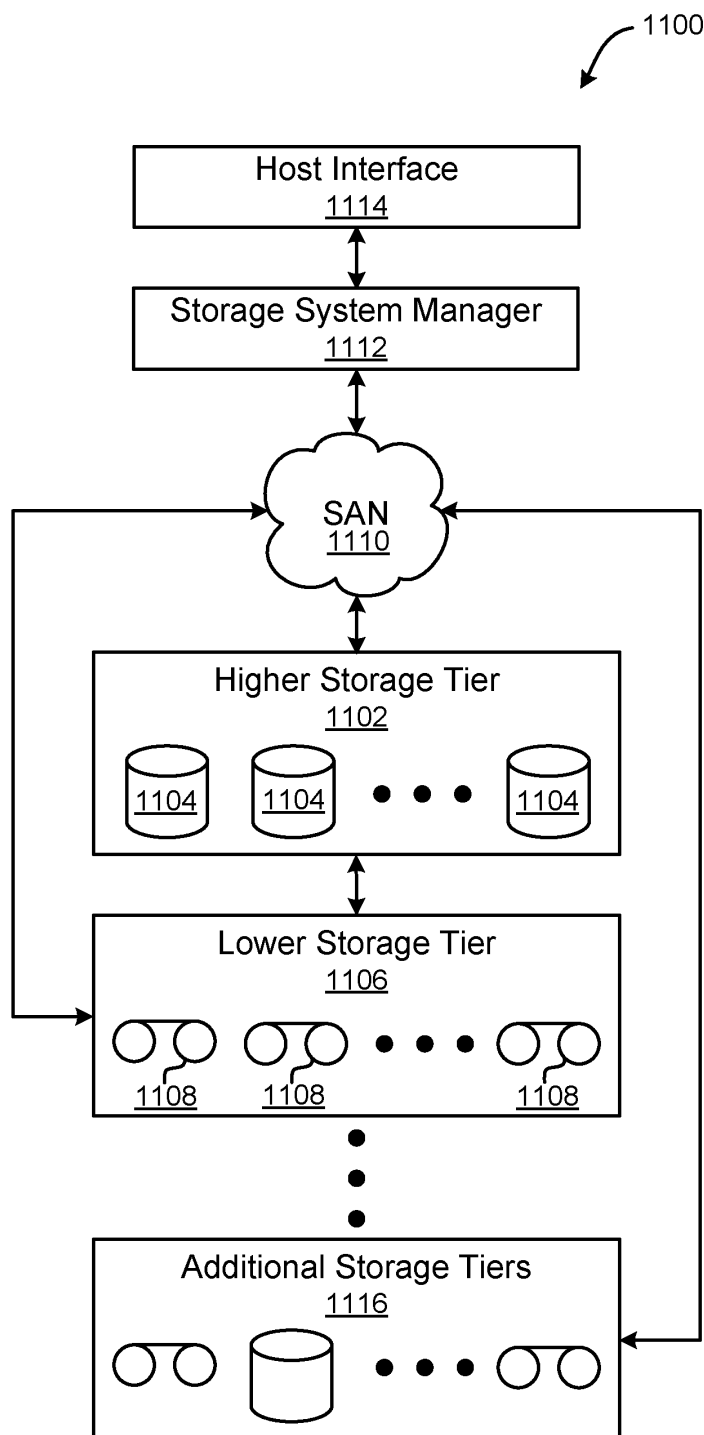


FIG. 11