

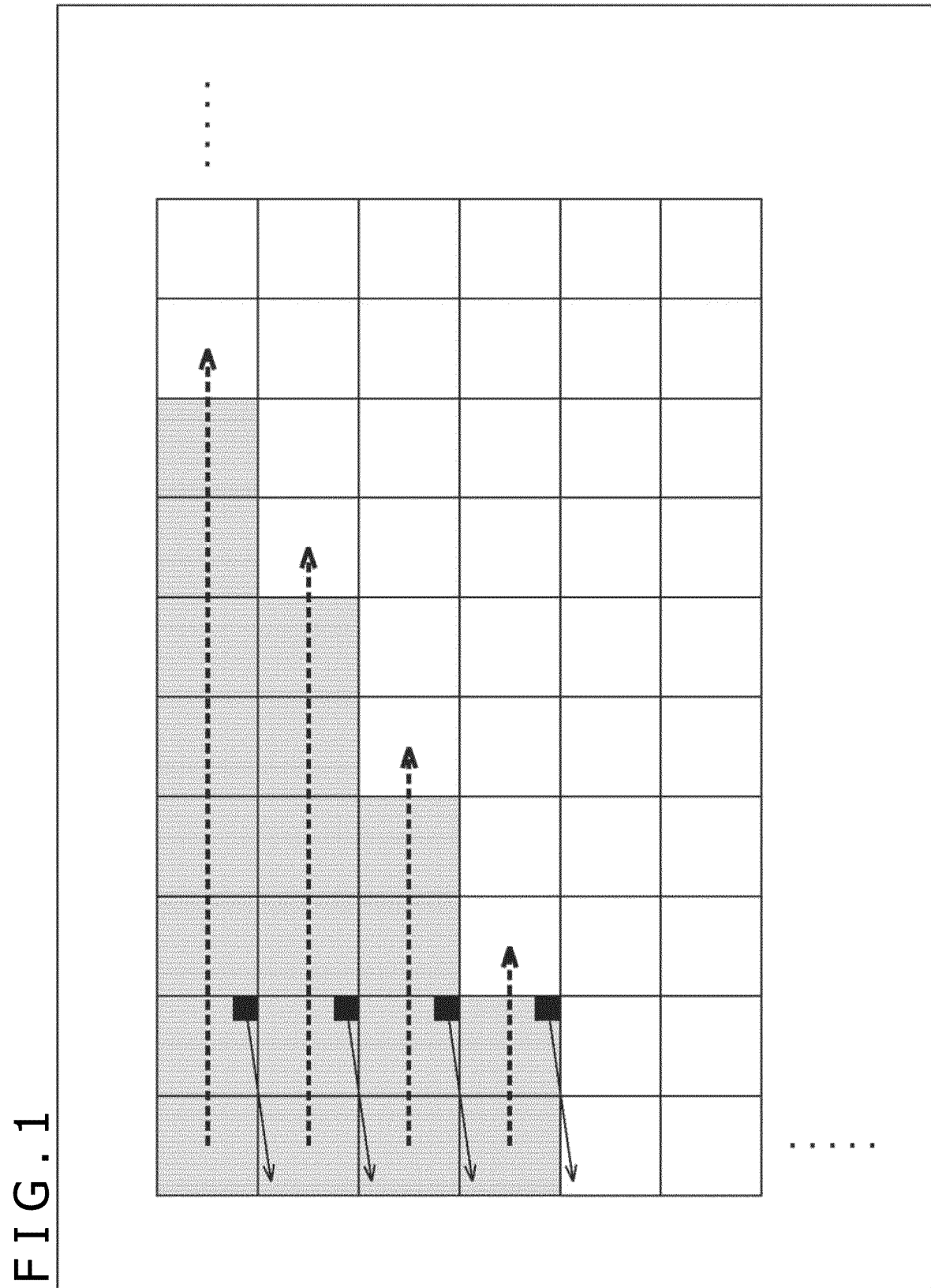


FIG. 2

(Max) CTU Size	CTU _w , CTU _h	MAXIMUM PARALLELISM	AVERAGE PARALLELISM
64x64	60, 34	30	21.2
128x128	30, 17	15	10.6

CTU-BASED WPP PARALLELISM (UNDER IDEAL CONDITION THAT EACH CTU HAS SAME PROCESSING TIME)

- MAXIMUM PARALLELISM = $\min(\text{ceil}(\text{CTU}_w/2), \text{CTU}_h)$
- AVERAGE PARALLELISM = $\sum p(x, y) / (\text{CTU}_w * \text{CTU}_h)$
- CTU_w: NUMBER OF CTUs IN HORIZONTAL DIRECTION
 - CTU_h: NUMBER OF CTUs IN VERTICAL DIRECTION
 - $p(x, y)$: PARALLELISM WHEN CTU(x, y) IS PROCESSED

FIG. 3

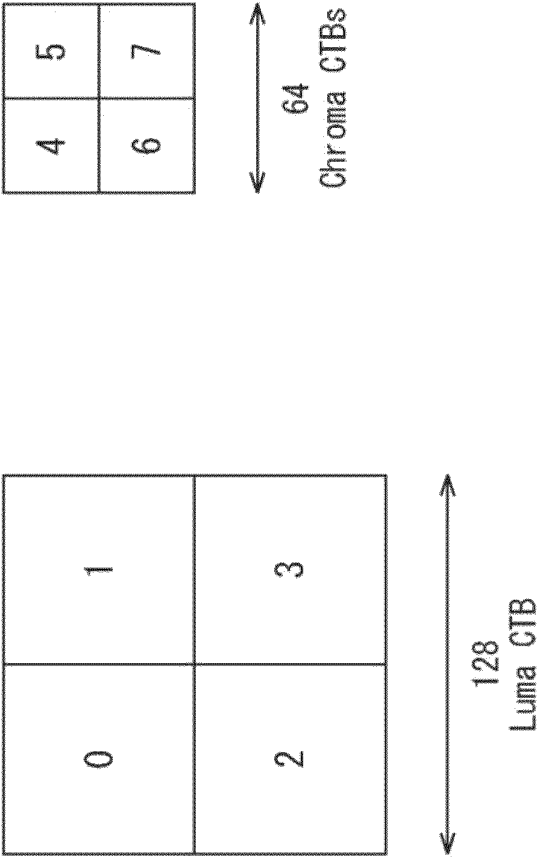


FIG. 4

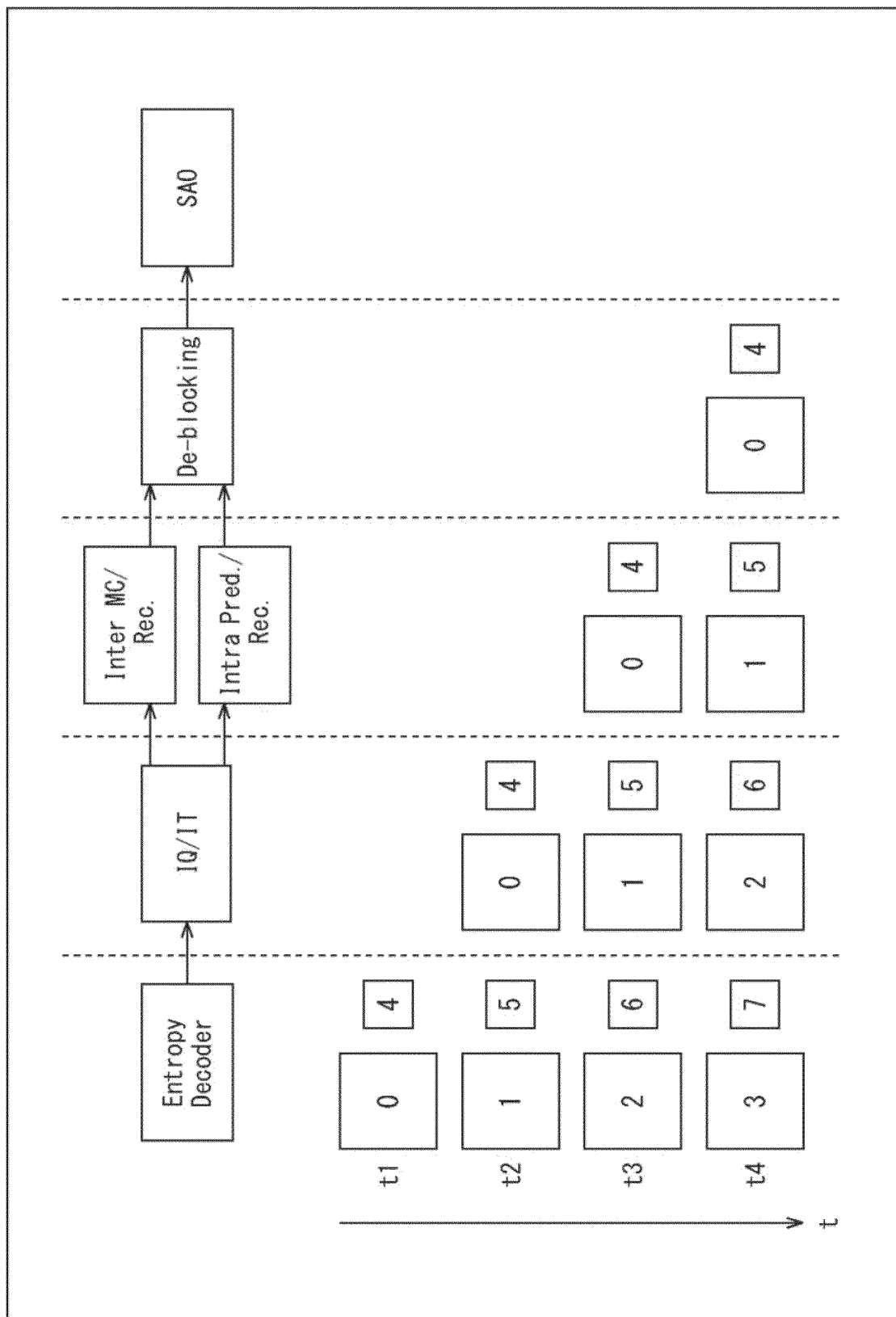


FIG. 5

1	VPDU COMPATIBLE WPP	
1-1	PARALLELIZATION IN EACH LINE OF CTUs INCLUDING VPDUs AND PIPELINE DELAY CORRESPONDS TO 2 VPDUs (1 CTU)	
1-2	RESTRICT INTRA PREDICTION	
1-2-1	FOR UPPER RIGHT VPDU IN CURRENT CTU,	MAKE REFERENCING OF CTU AT UPPER RIGHT OF UPPER RIGHT VPDU UNAVAILABLE
1-3	RESTRICT INTRA PREDICTION	
1-3-1	FOR UPPER RIGHT VPDU IN CURRENT CTU,	MAKE REFERENCING OF CTU AT UPPER RIGHT OF UPPER RIGHT VPDU UNAVAILABLE
1-3-2	FOR 128xN BLOCK, MAKE MV AT UPPER RIGHT OF 128xN BLOCK UNAVAILABLE	

FIG. 7

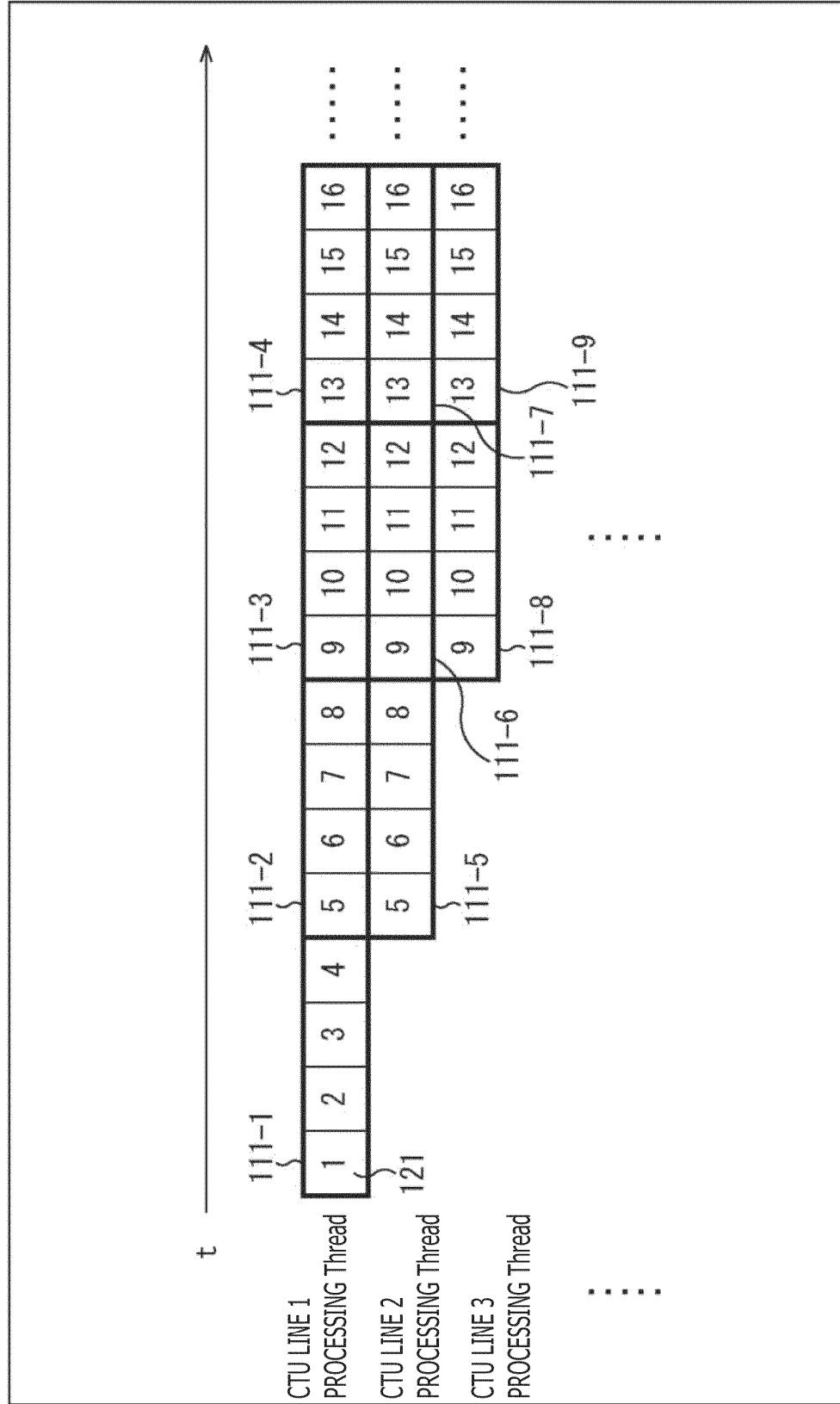


FIG. 8

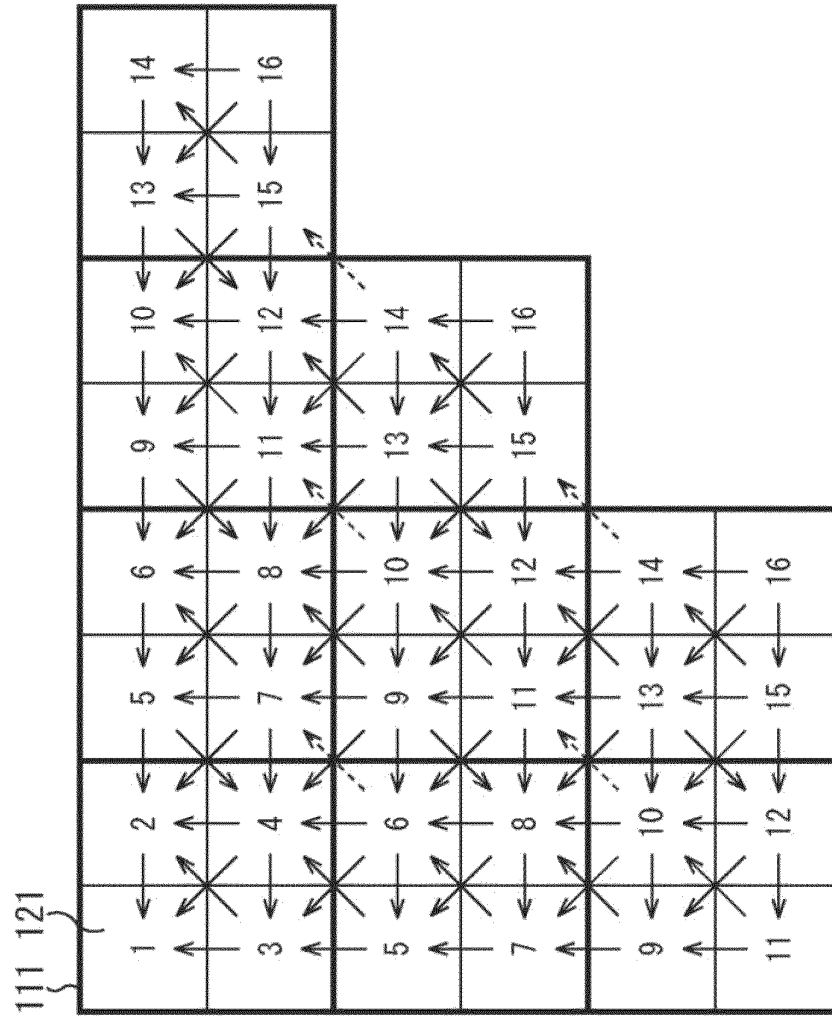


FIG. 9

e	f	g	h
i	a	b	121
j	c	d	111

WHEN WPP IS OFF

A

e	f	g	h
i	a	b	121
j	c	d	111

WHEN WPP DEALS WITH VPDUS

B

FIG. 10

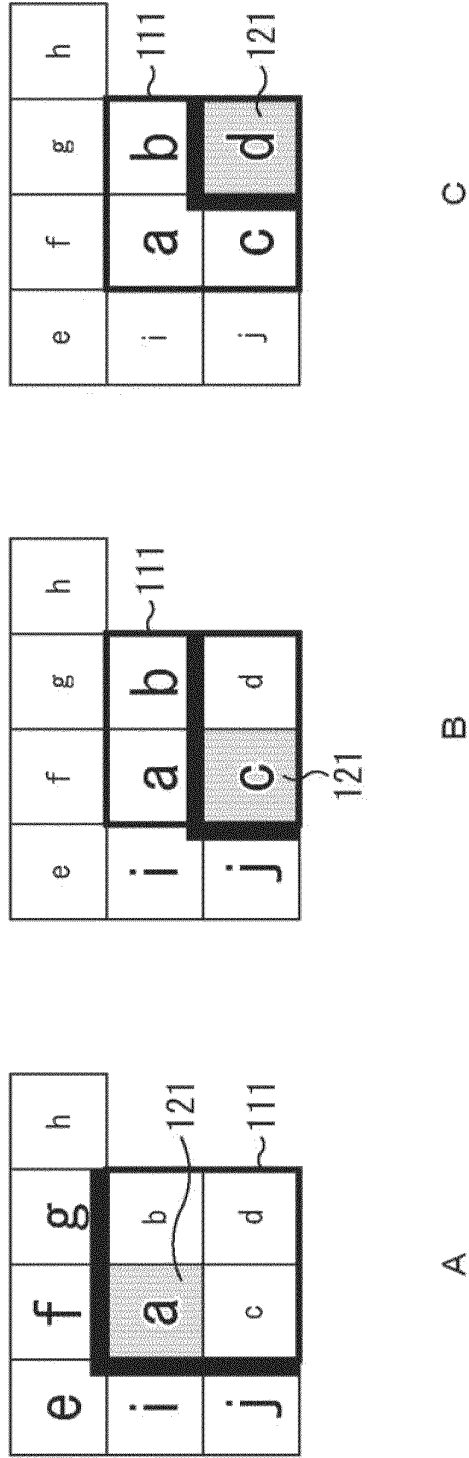


FIG. 11

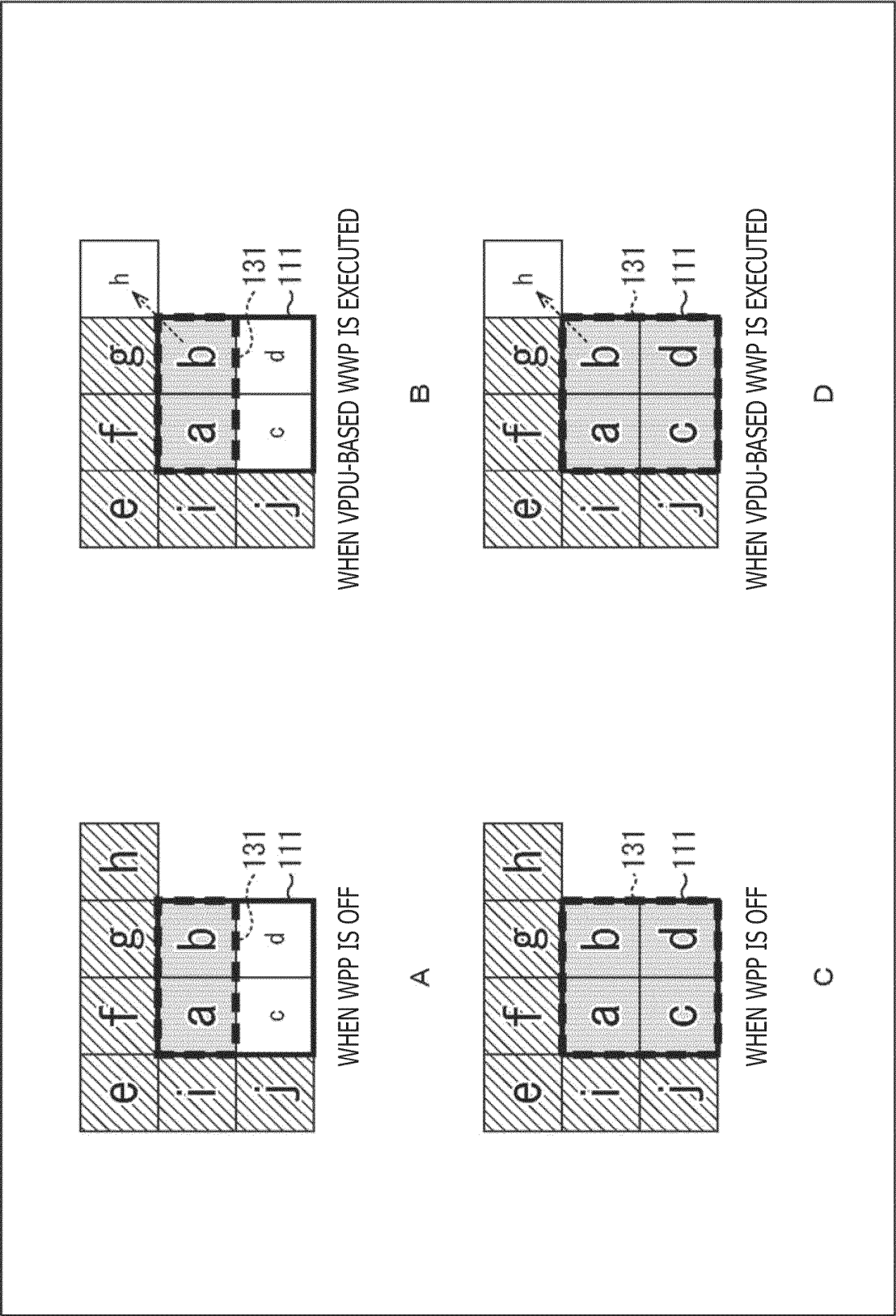


FIG. 12

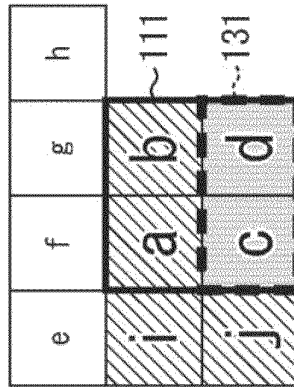


FIG. 14

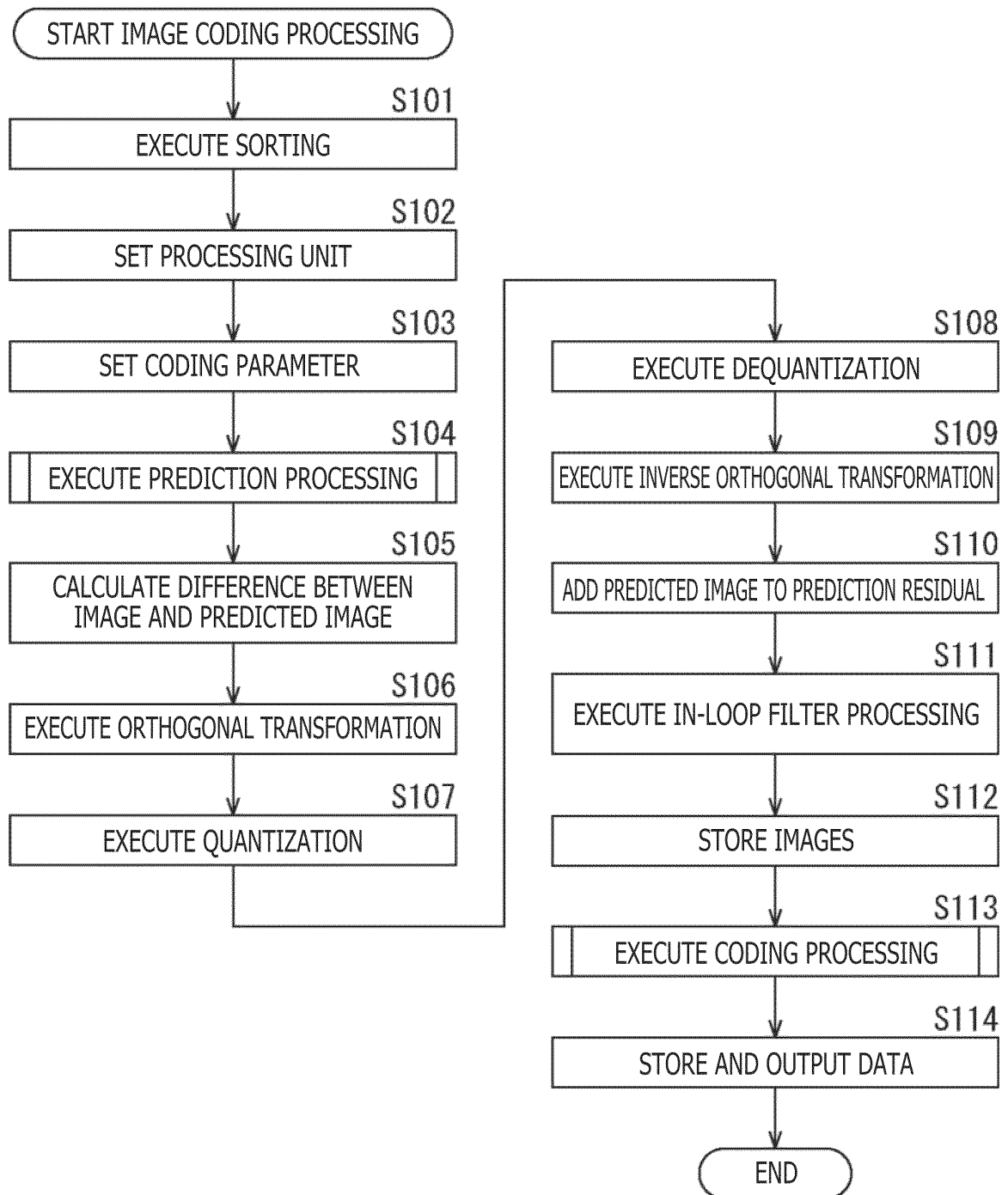


FIG. 15

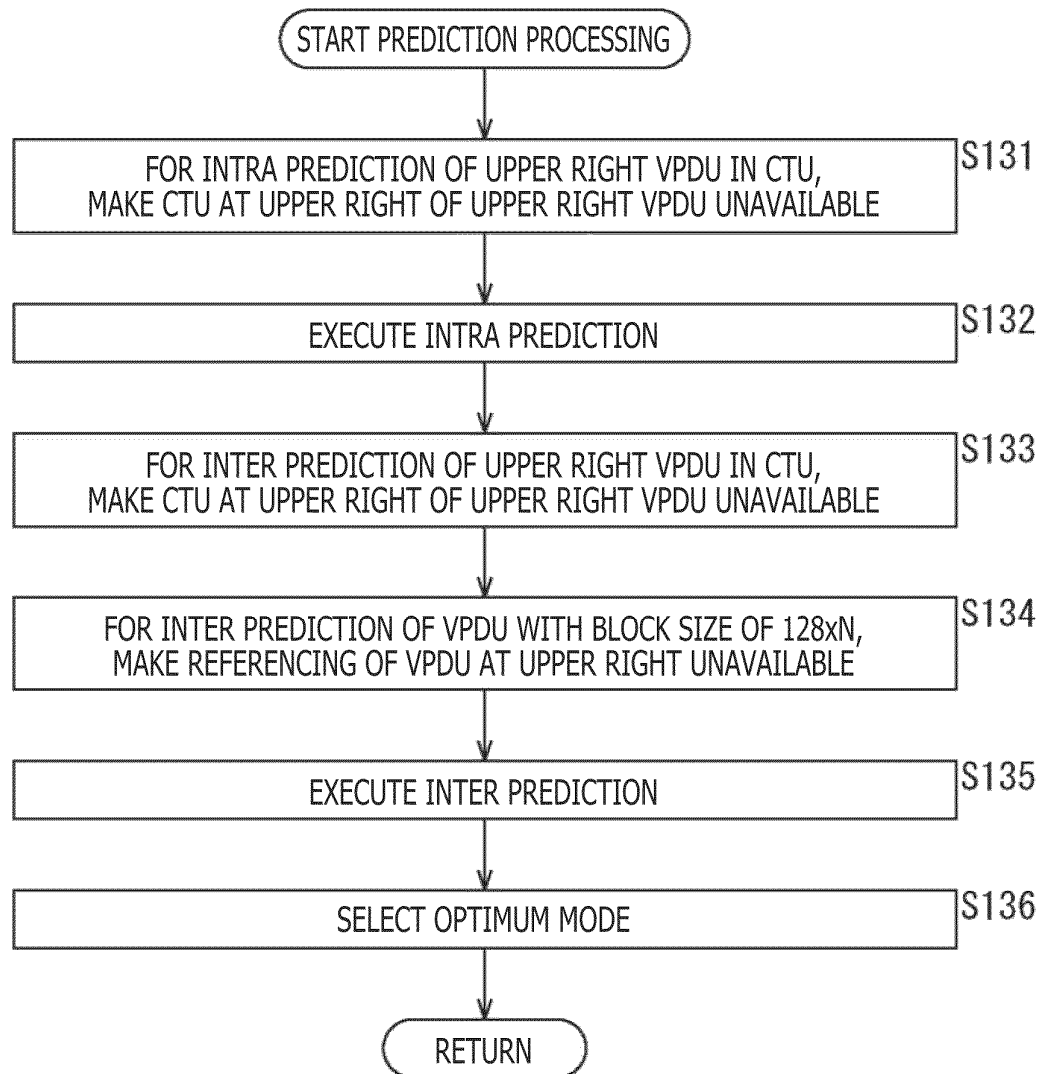


FIG. 16

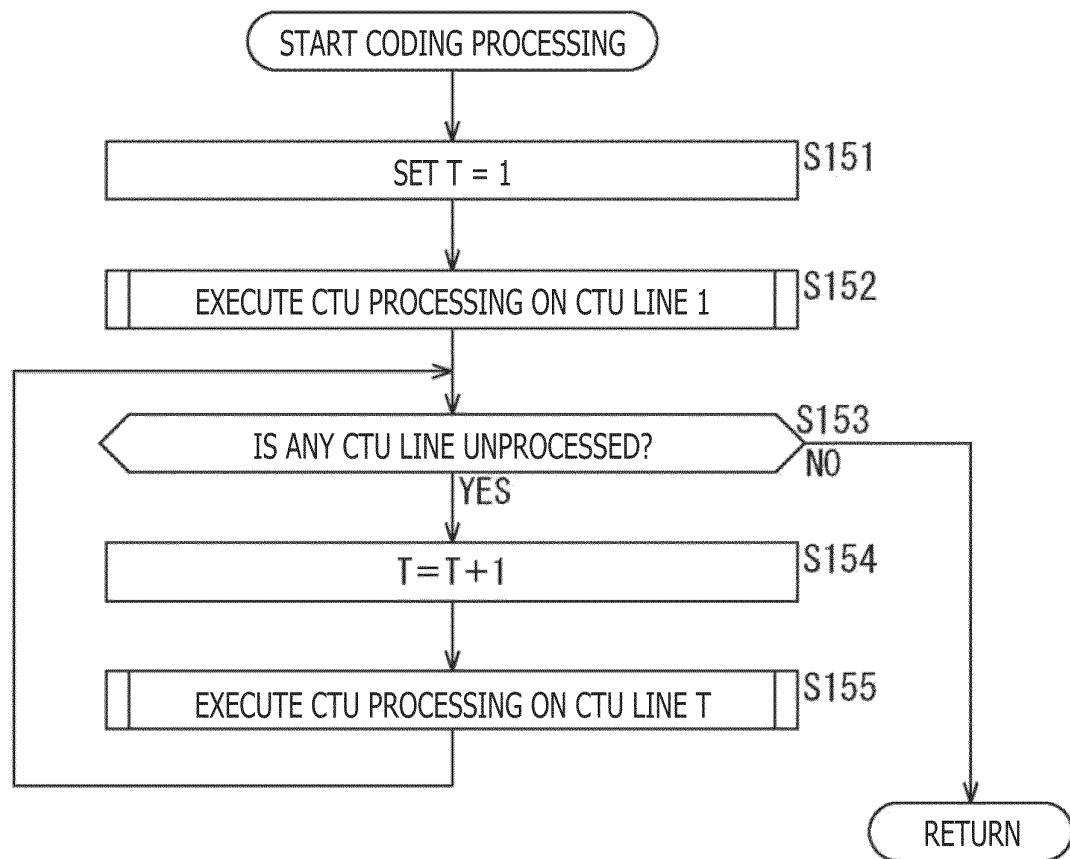


FIG. 17

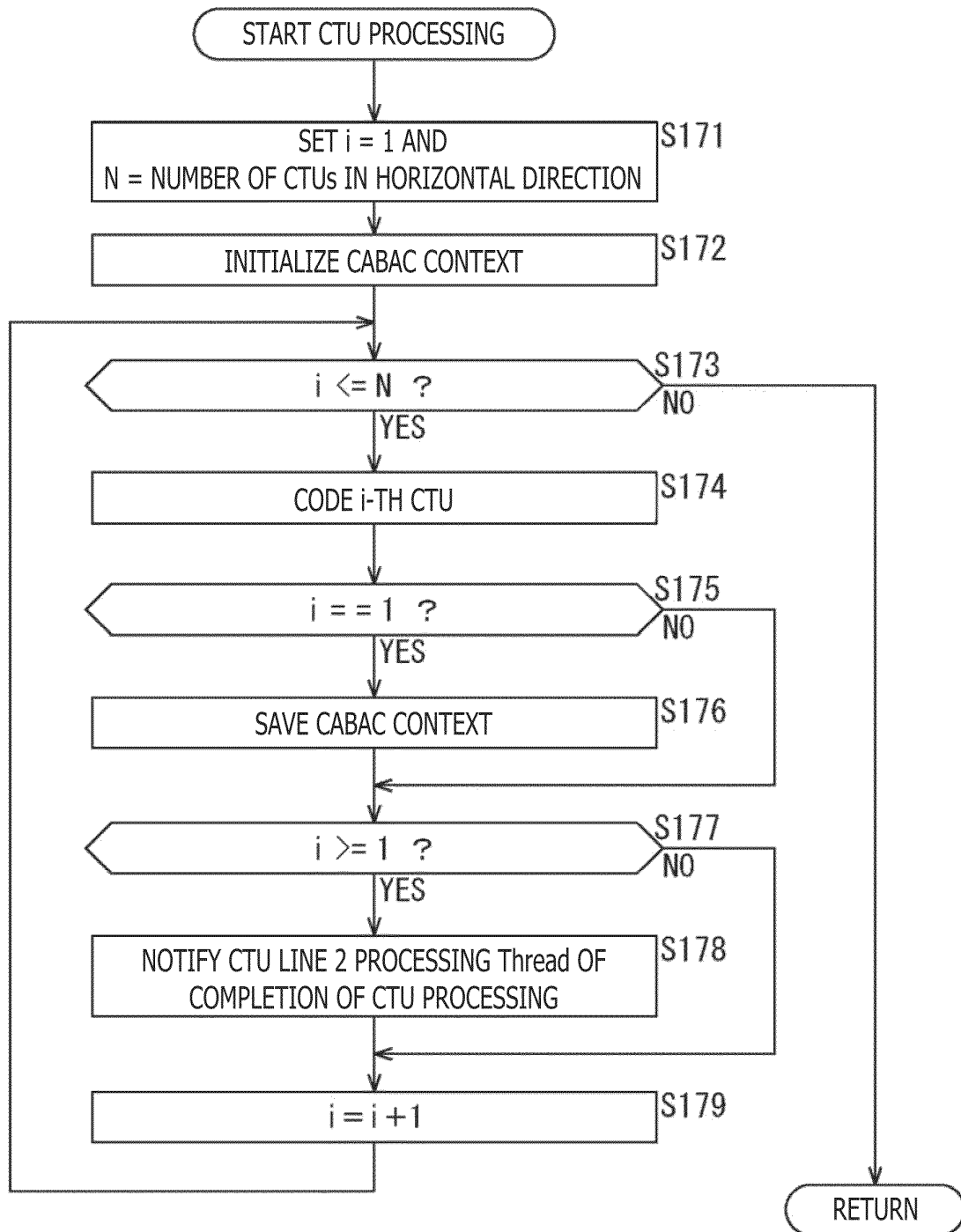


FIG. 18

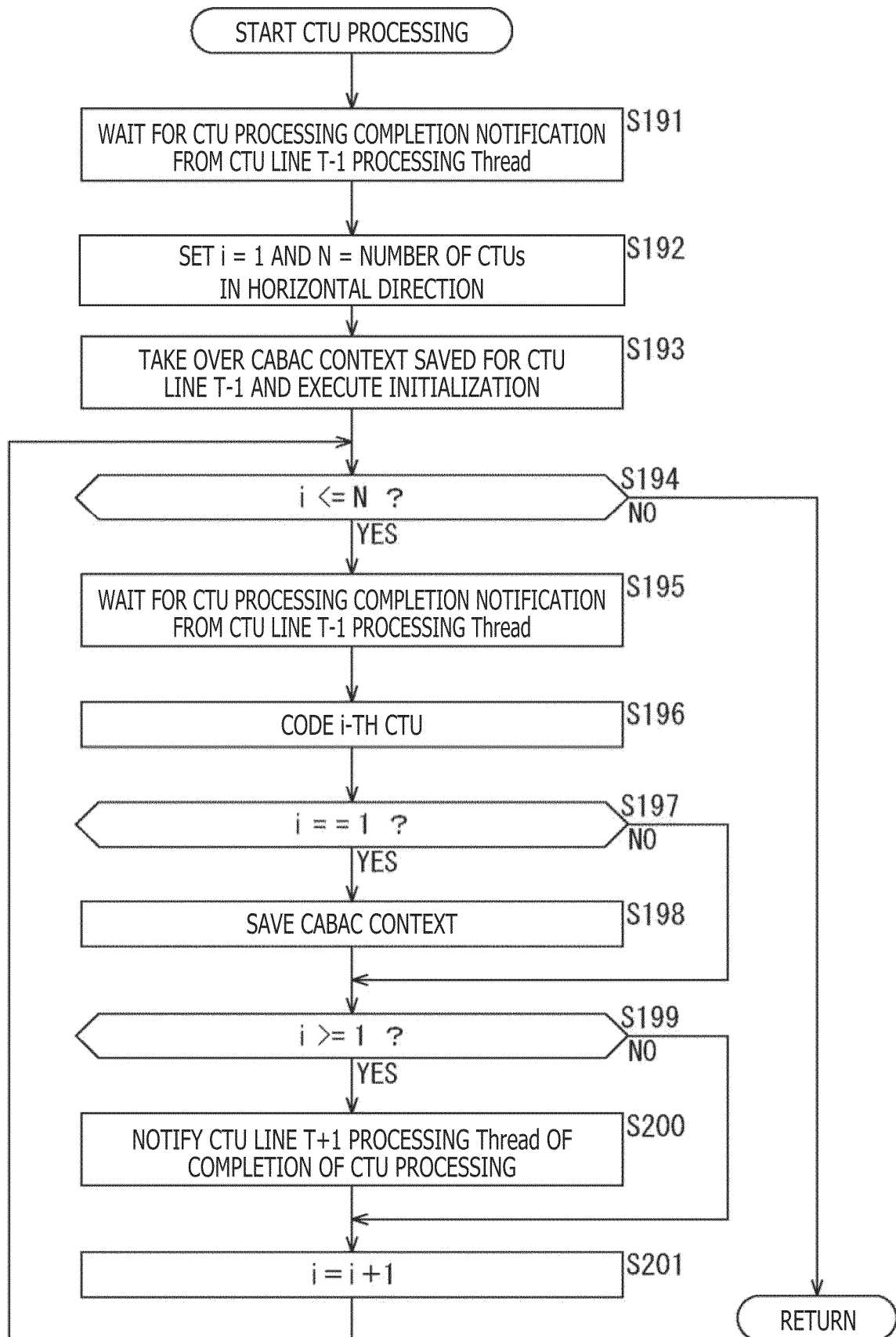


FIG. 19

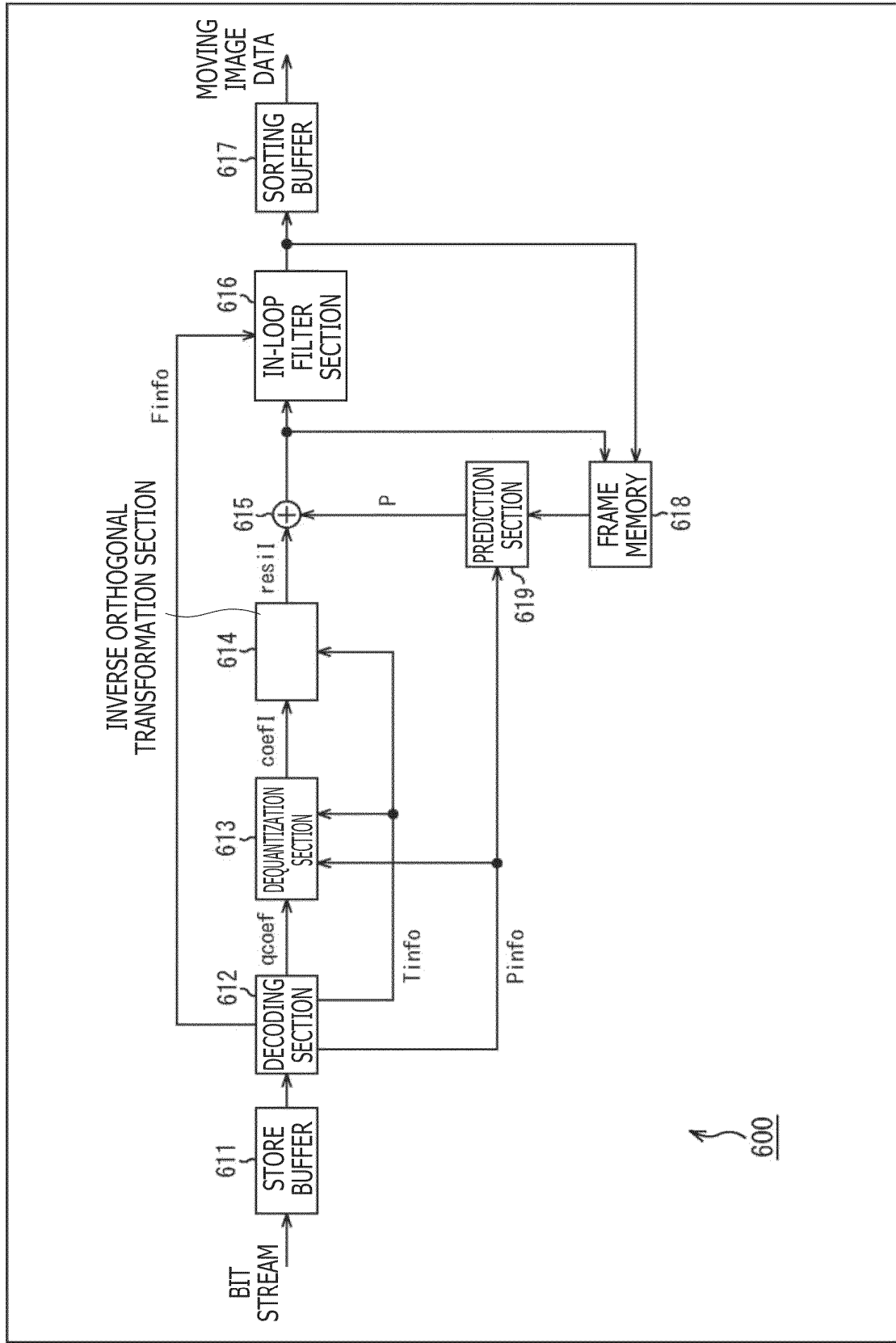


FIG. 20

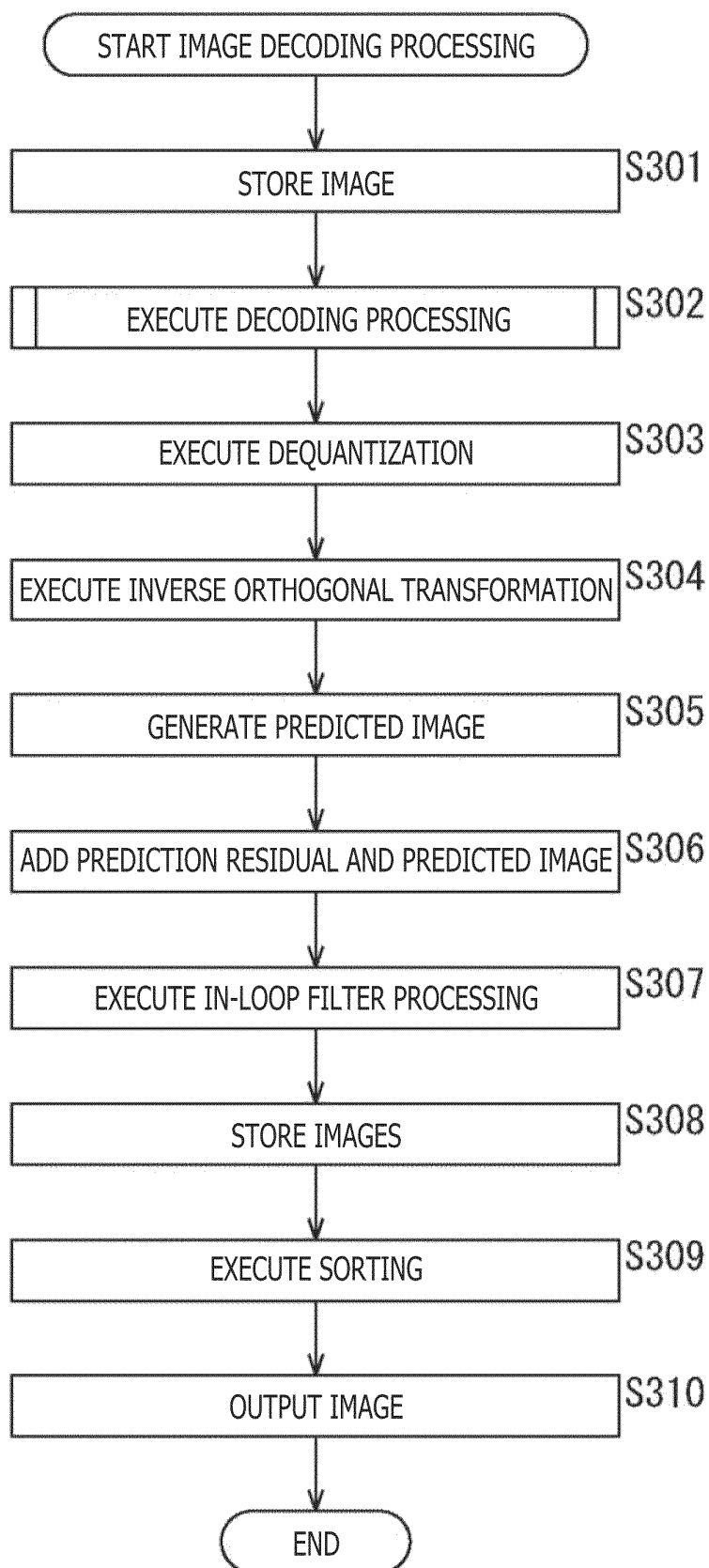


FIG. 21

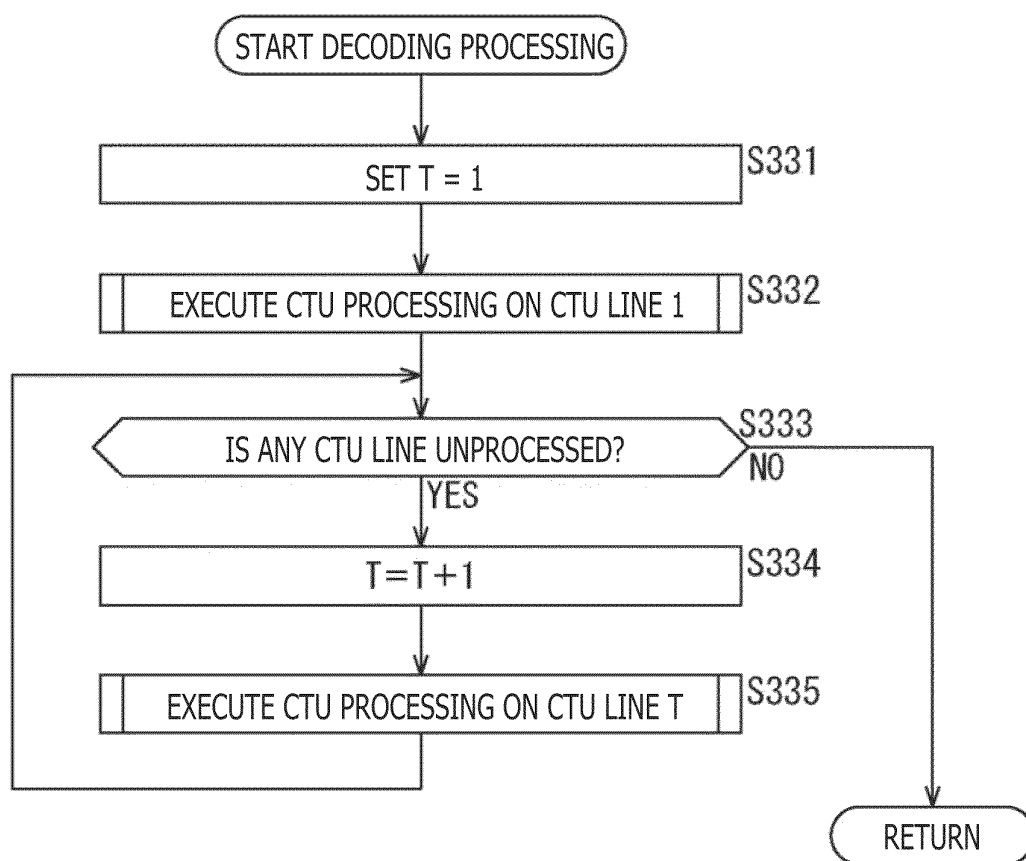


FIG. 22

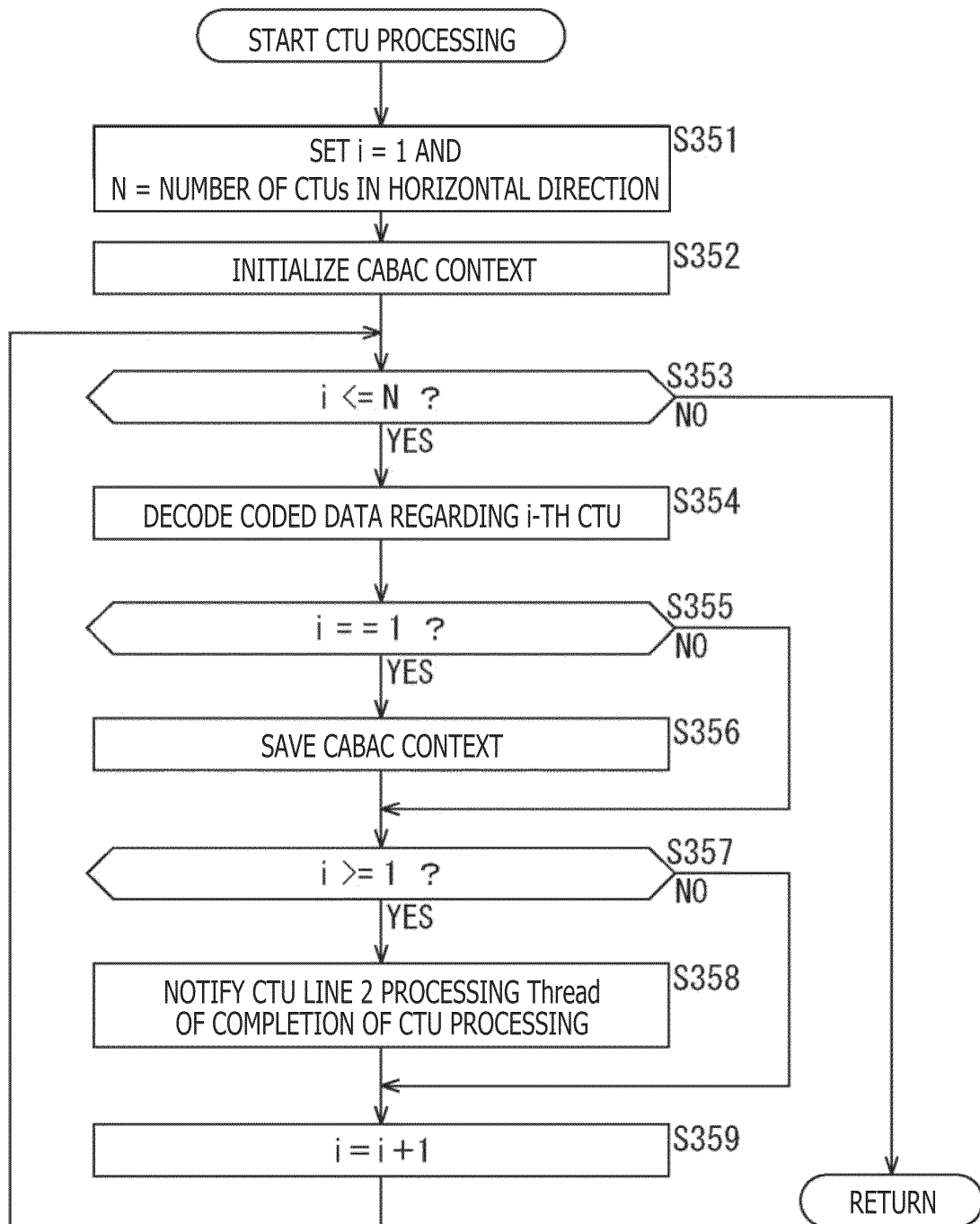


FIG. 23

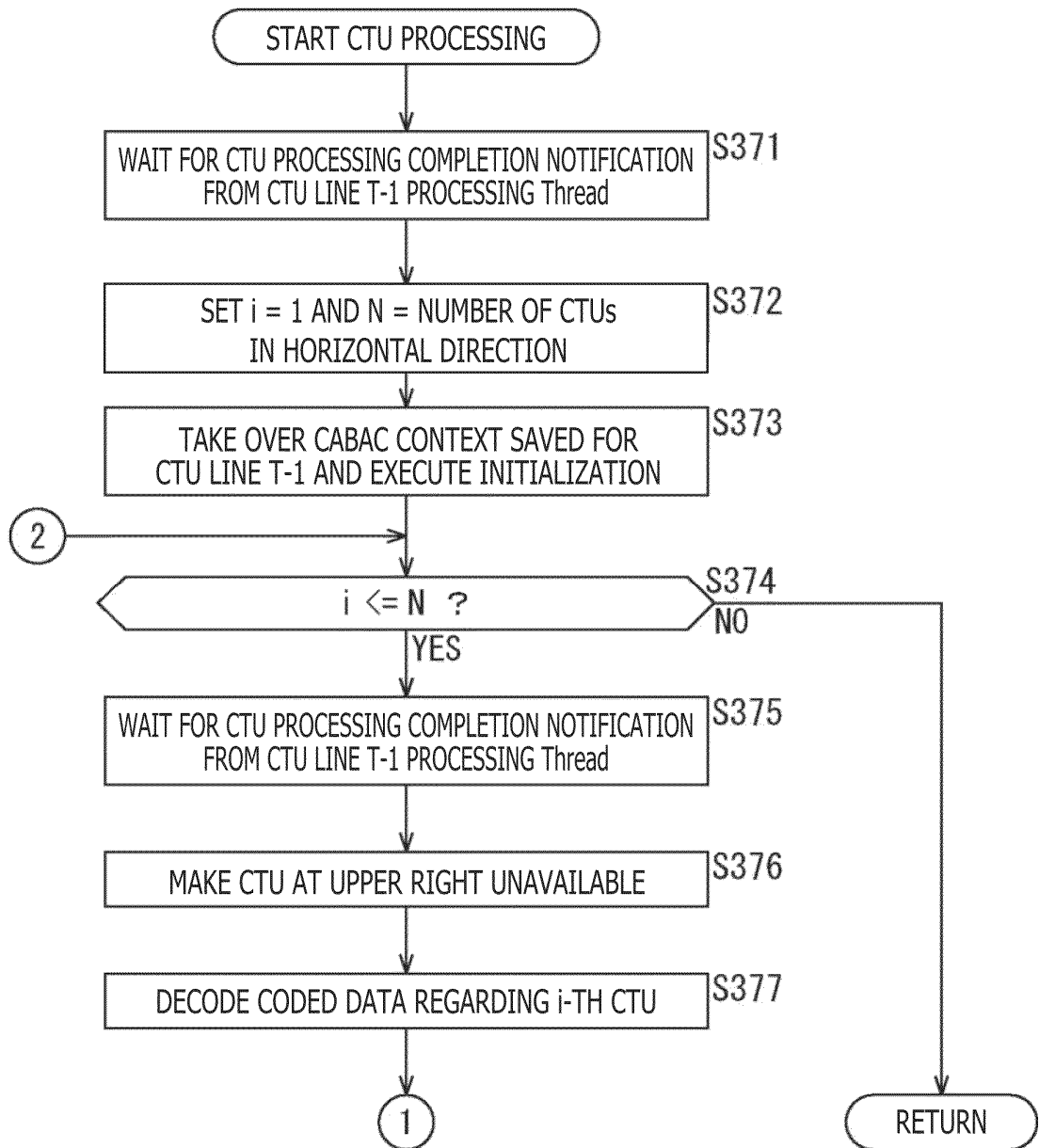


FIG. 24

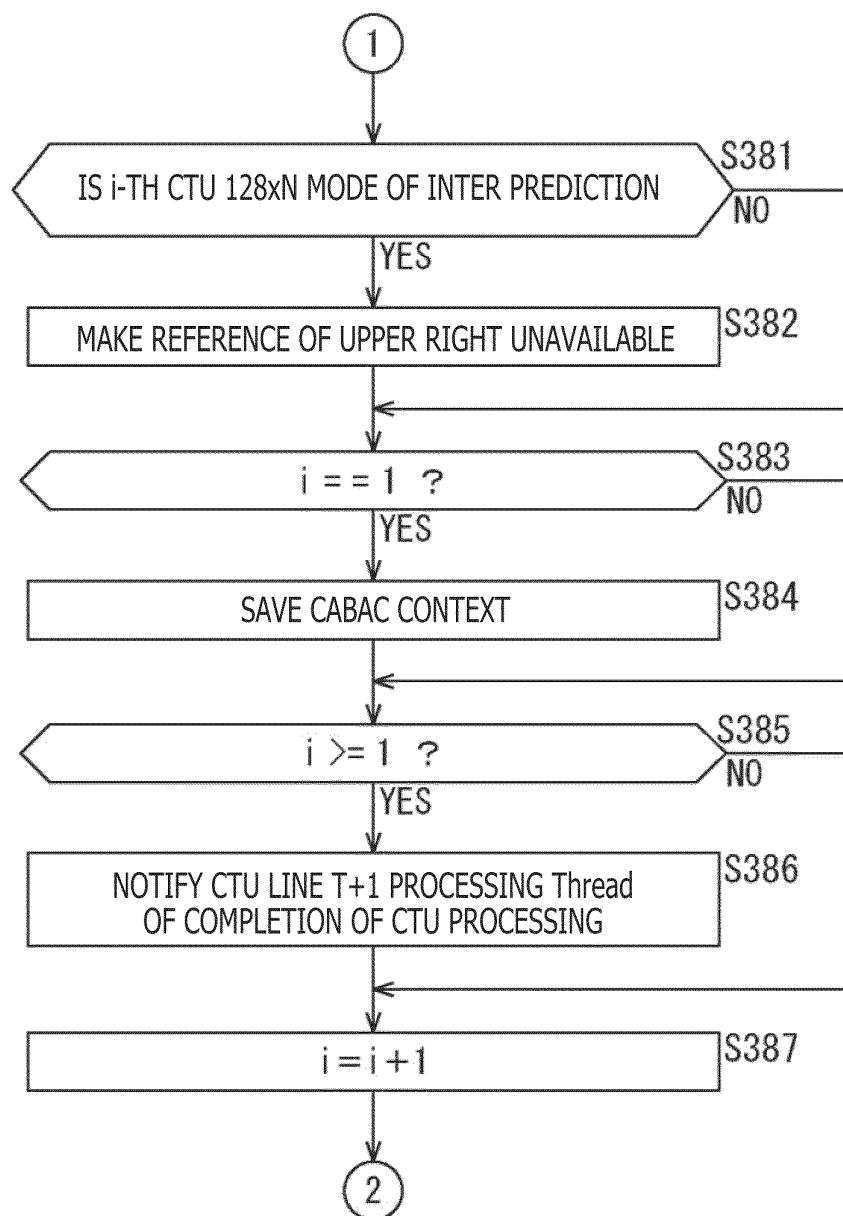


FIG. 25

