FIG. 1

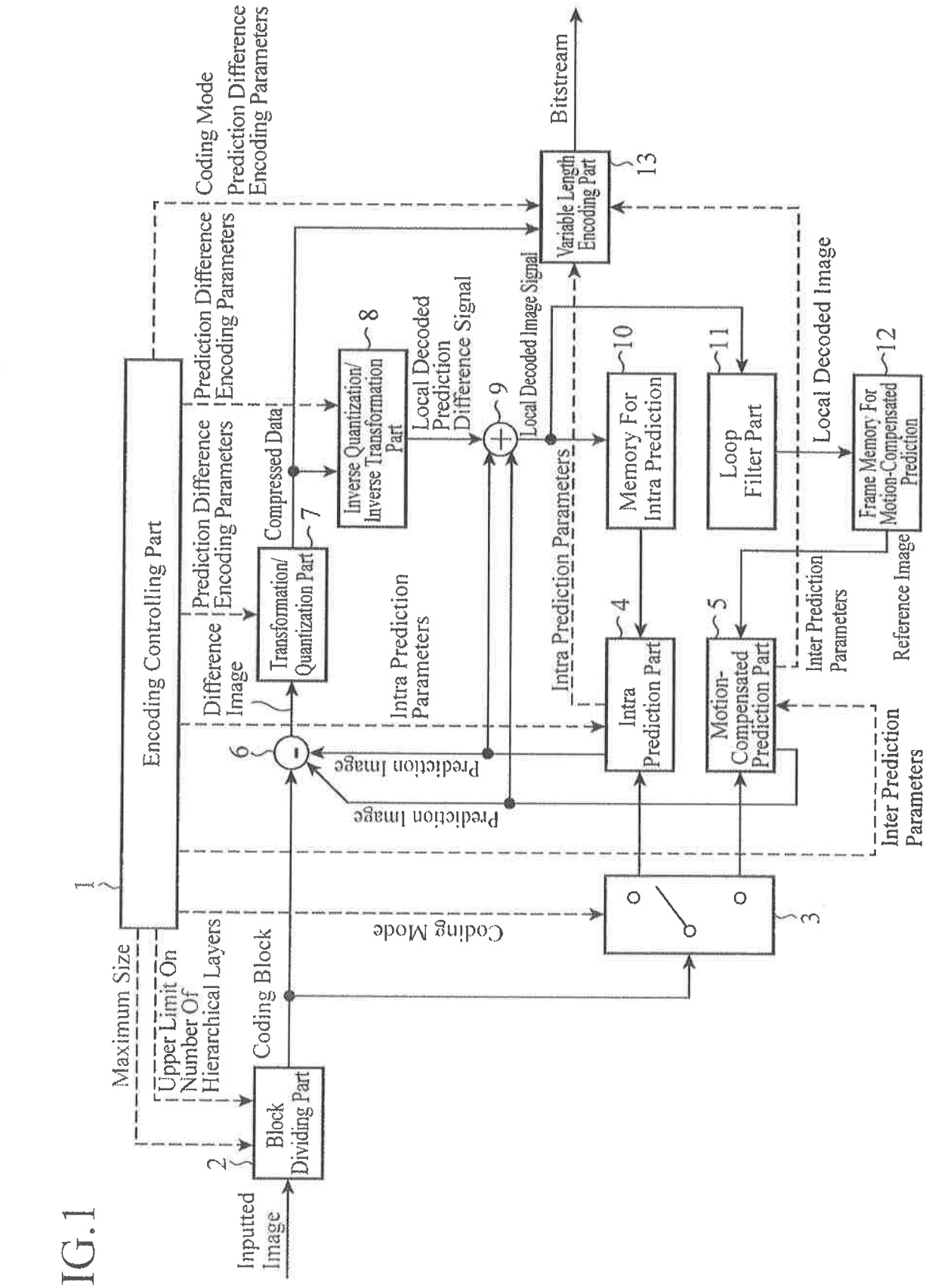

Inputted Image
Block Dividing Part
2
Maximum Size
Upper Limit On Number Of Hierarchical Layers
Coding Block
Encoding Controlling Part
1
Coding Mode
Prediction Difference Encoding Parameters
Prediction Difference Encoding Parameters
Difference Image
6
Transformation/ Quantization Part
7
Compressed Data
Inverse Quantization/ Inverse Transformation Part
8
Local Decoded Prediction Difference Signal
9
Local Decoded Image Signal
Variable Length Encoding Part
13
Bitstream
Intra Prediction Parameters
Memory For Intra Prediction
10
Loop Filter Part
11
Local Decoded Image
Frame Memory For Motion-Compensated Prediction
12
Intra Prediction Part
4
Motion-Compensated Prediction Part
5
Inter Prediction Parameters
Reference Image
Prediction Image
Prediction Image
Coding Mode
3
Inter Prediction Parameters

FIG.2

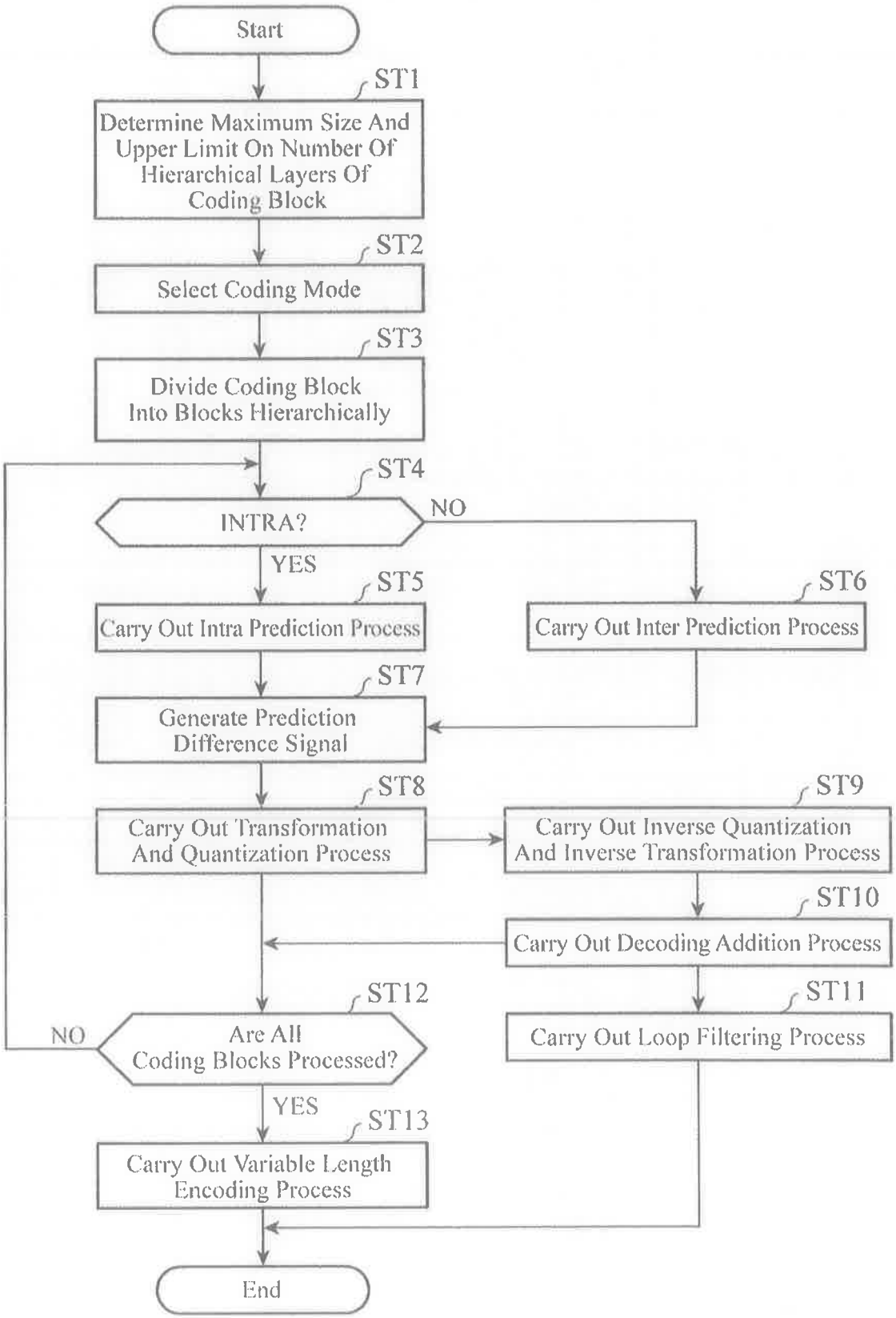

Start
ST1
Determine Maximum Size And Upper Limit On Number Of Hierarchical Layers Of Coding Block
ST2
Select Coding Mode
ST3
Divide Coding Block Into Blocks Hierarchically
ST4
INTRA?
NO
YES
ST5
Carry Out Intra Prediction Process
ST6
Carry Out Inter Prediction Process
ST7
Generate Prediction Difference Signal
ST8
Carry Out Transformation And Quantization Process
ST9
Carry Out Inverse Quantization And Inverse Transformation Process
ST10
Carry Out Decoding Addition Process
ST11
Carry Out Loop Filtering Process
ST12
Are All Coding Blocks Processed?
NO
YES
ST13
Carry Out Variable Length Encoding Process
End

FIG.3

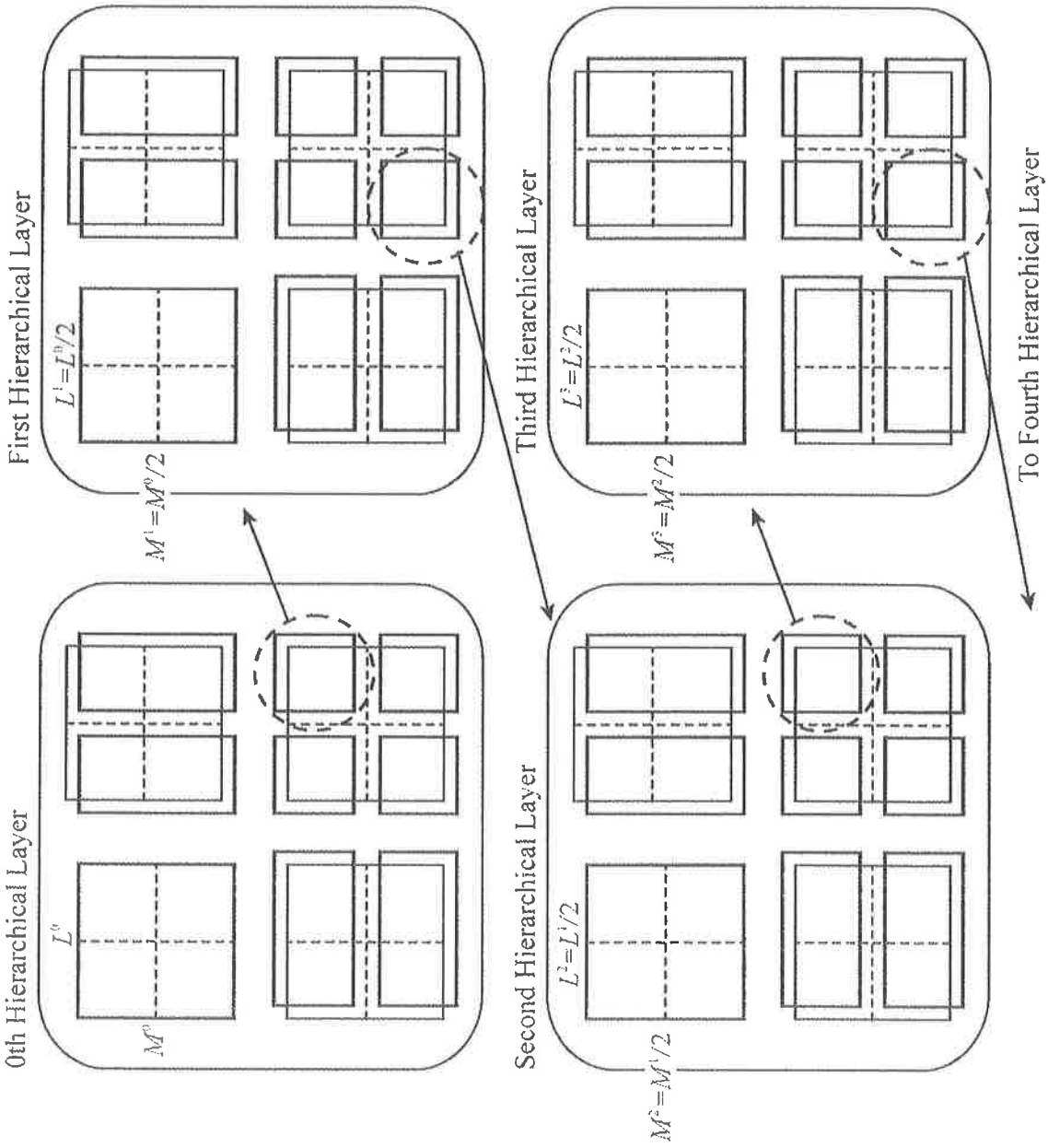

0th Hierarchical Layer
First Hierarchical Layer
Second Hierarchical Layer
Third Hierarchical Layer
To Fourth Hierarchical Layer
L^0
M^0
$L^1=L^0/2$
$M^1=M^0/2$
$L^2=L^1/2$
$M^2=M^1/2$
$L^3=L^2/2$
$M^3=M^2/2$

FIG.4

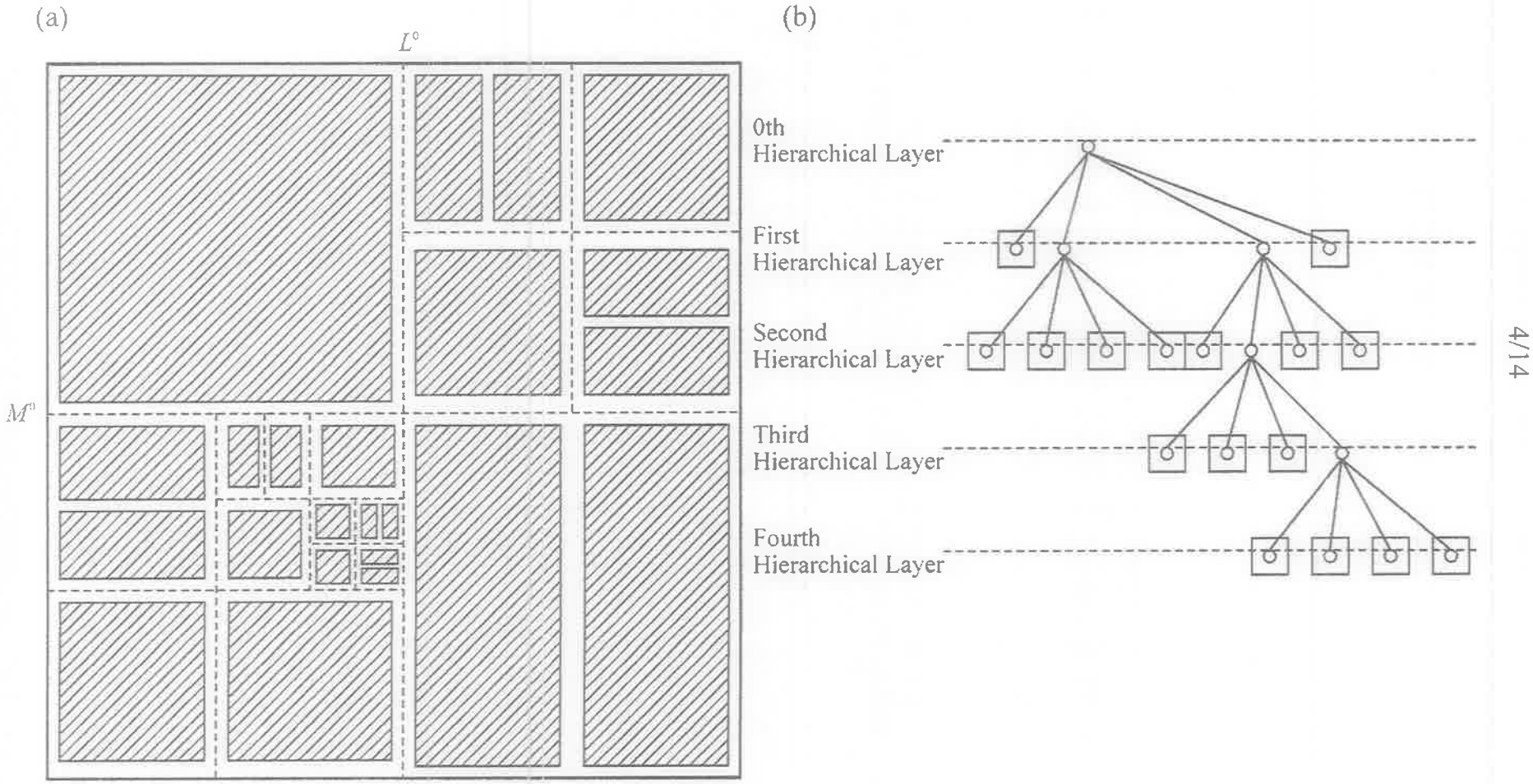
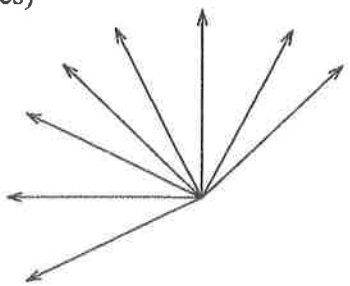

(a)
L^0
M^0
(b)
0th
Hierarchical Layer
First
Hierarchical Layer
Second
Hierarchical Layer
Third
Hierarchical Layer
Fourth
Hierarchical Layer

FIG.5

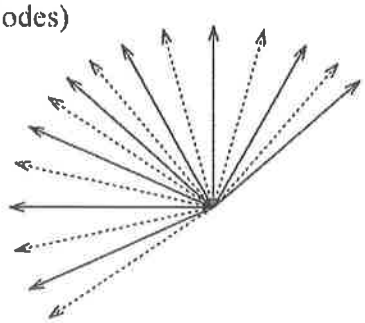
Intra Prediction Mode Index	Intra Prediction Mode
0	Vertical Prediction
1	Horizontal Prediction
2	Average Prediction
3~N-1	Diagonal Prediction

N: Number Of Intra Prediction Modes

Directional Predictions in Case of N=9 (8 Modes)



Directional Predictions in Case of N=17 (16 Modes)



Directional Prediction in Case of N=33 (32 Modes)

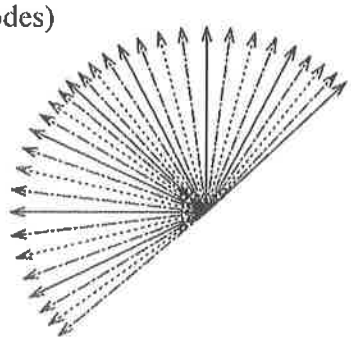


FIG.6

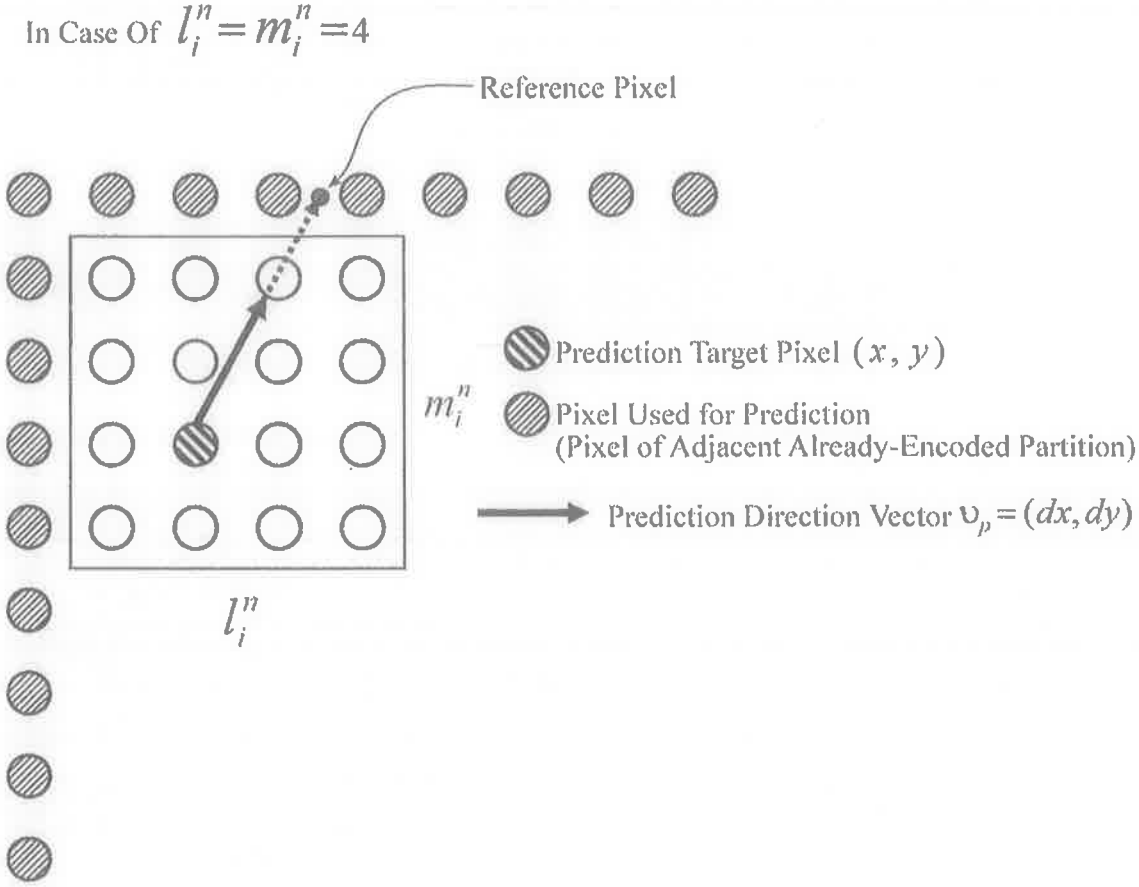

In Case Of $l_i^n = m_i^n = 4$
Reference Pixel
m_i^n
l_i^n
Prediction Target Pixel (x, y)
Pixel Used for Prediction
(Pixel of Adjacent Already-Encoded Partition)
Prediction Direction Vector $\upsilon_p = (dx, dy)$

FIG.7

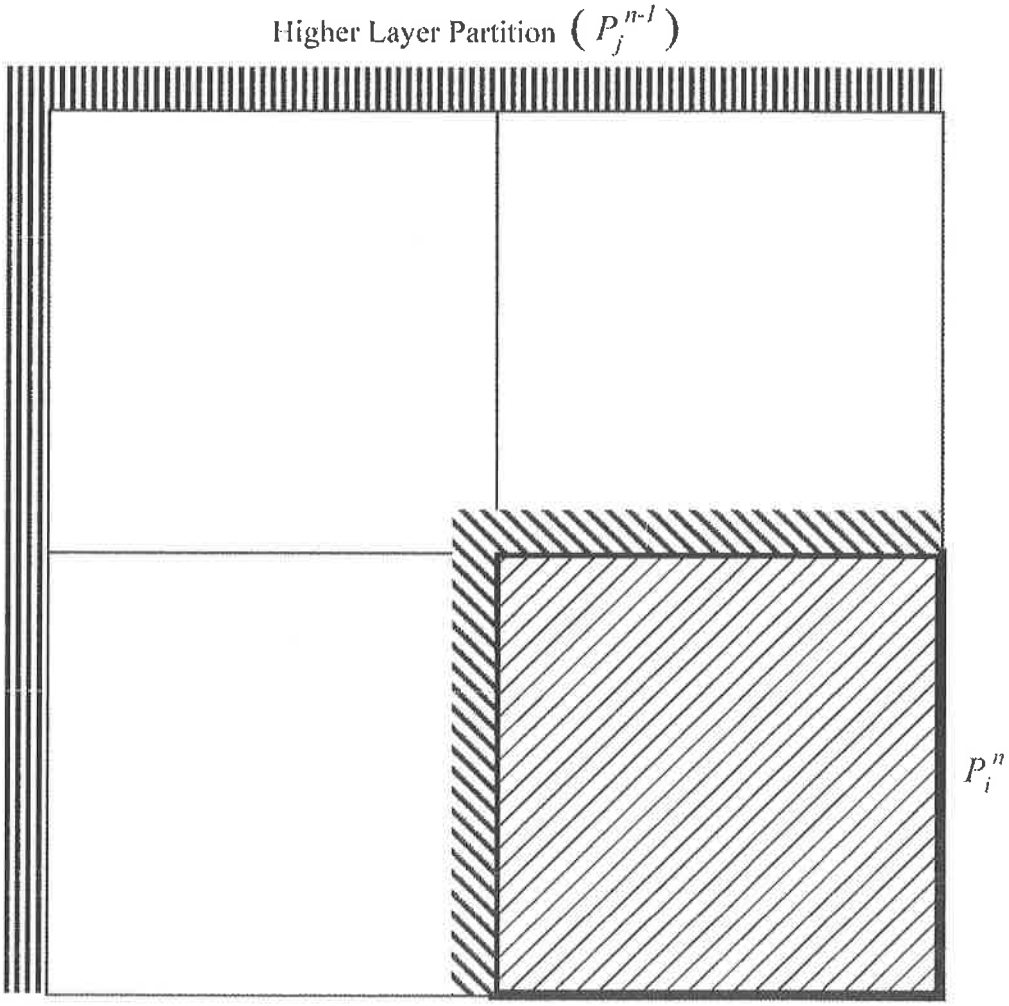


FIG.8

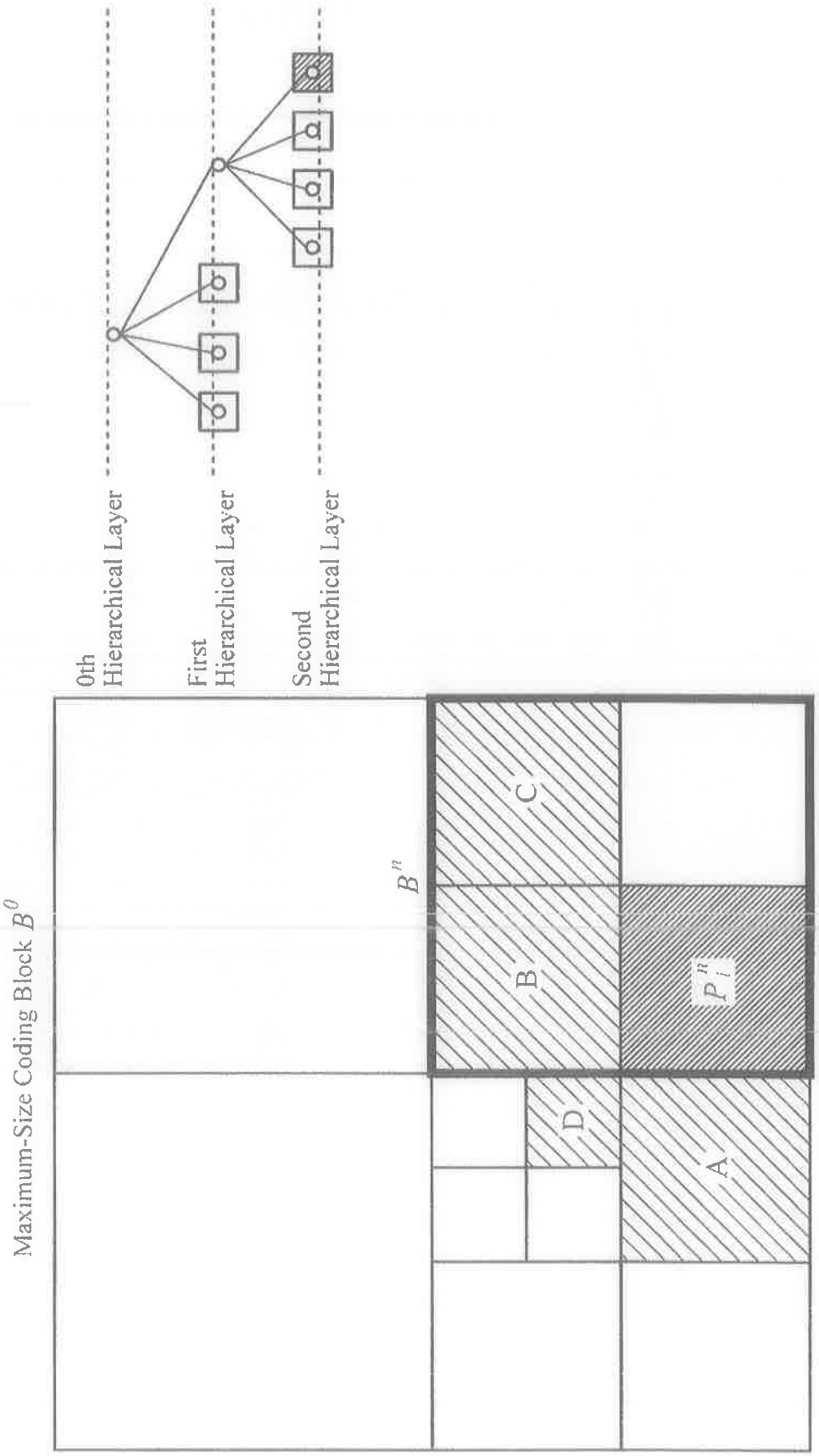

Maximum-Size Coding Block B^0
0th Hierarchical Layer
First Hierarchical Layer
Second Hierarchical Layer
B^n
A
B
C
D
P_i^n

FIG.9

In Case Of 17

Intra Prediction Mode Index	Intra Prediction Mode	Intra Prediction Mode Index	Intra Prediction Mode
0	Vertical Prediction	9	Vertical Prediction In Higher Layer
1	Horizontal Prediction	10	Horizontal Prediction In Higher Layer
2	Average Prediction	11	Average Prediction In Higher Layer
3	Diagonal Prediction 1	12	Diagonal Prediction 1 In Higher Layer
4	Diagonal Prediction 2	13	Diagonal Prediction 2 In Higher Layer
5	Diagonal Prediction 3	14	Diagonal Prediction 3 In Higher Layer
6	Diagonal Prediction 4	15	Diagonal Prediction 4 In Higher Layer
7	Diagonal Prediction 5	16	Diagonal Prediction 5 In Higher Layer
8	Diagonal Prediction 6	17	Diagonal Prediction 6 In Higher Layer

FIG.10

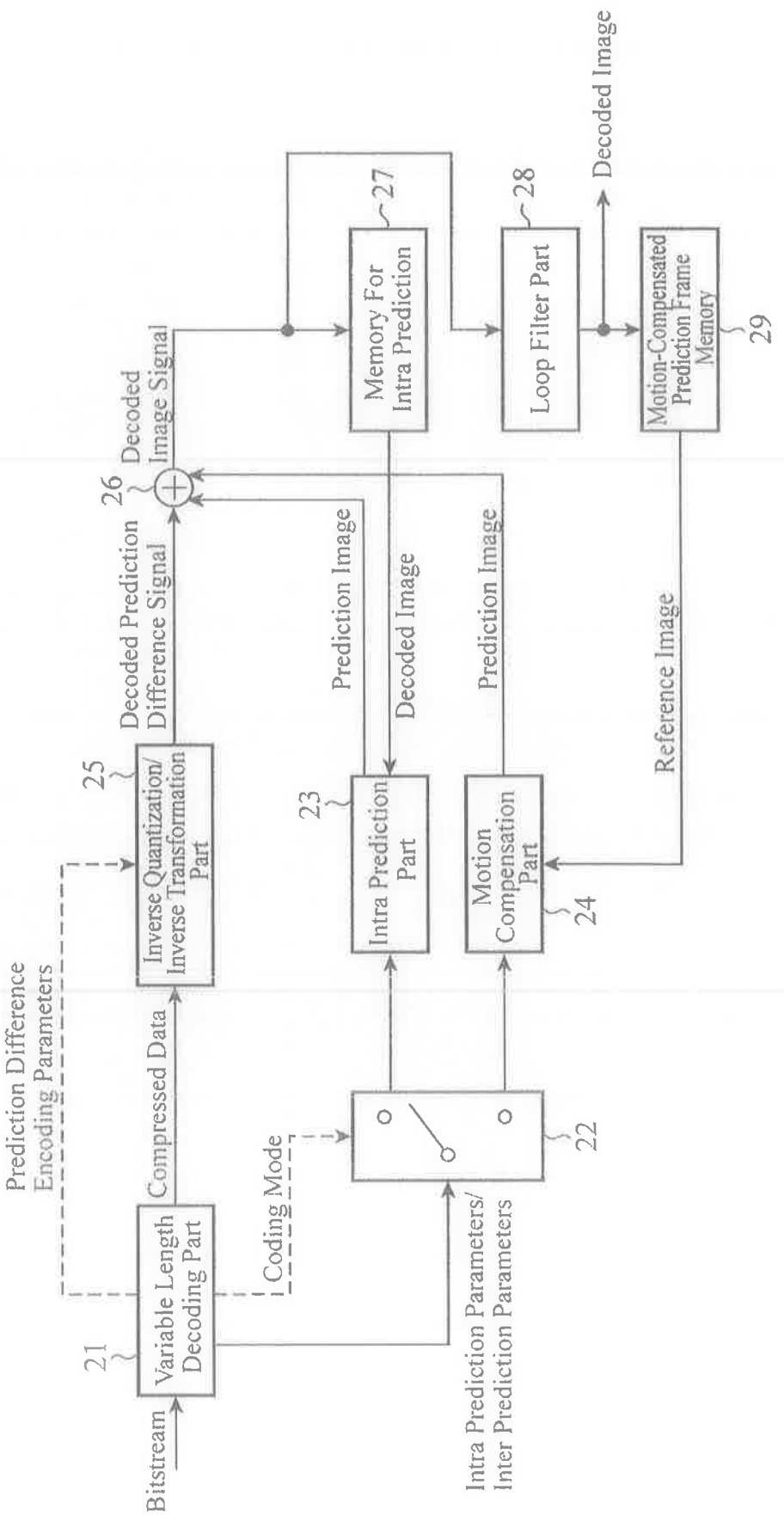

Bitstream
21
Variable Length Decoding Part
Prediction Difference Encoding Parameters
Compressed Data
Coding Mode
Intra Prediction Parameters/ Inter Prediction Parameters
22
25
Inverse Quantization/ Inverse Transformation Part
Decoded Prediction Difference Signal
26
Decoded Image Signal
23
Intra Prediction Part
Prediction Image
Decoded Image
24
Motion Compensation Part
Prediction Image
Reference Image
Memory For Intra Prediction
27
Loop Filter Part
28
Decoded Image
Motion-Compensated Prediction Frame Memory
29

FIG.11

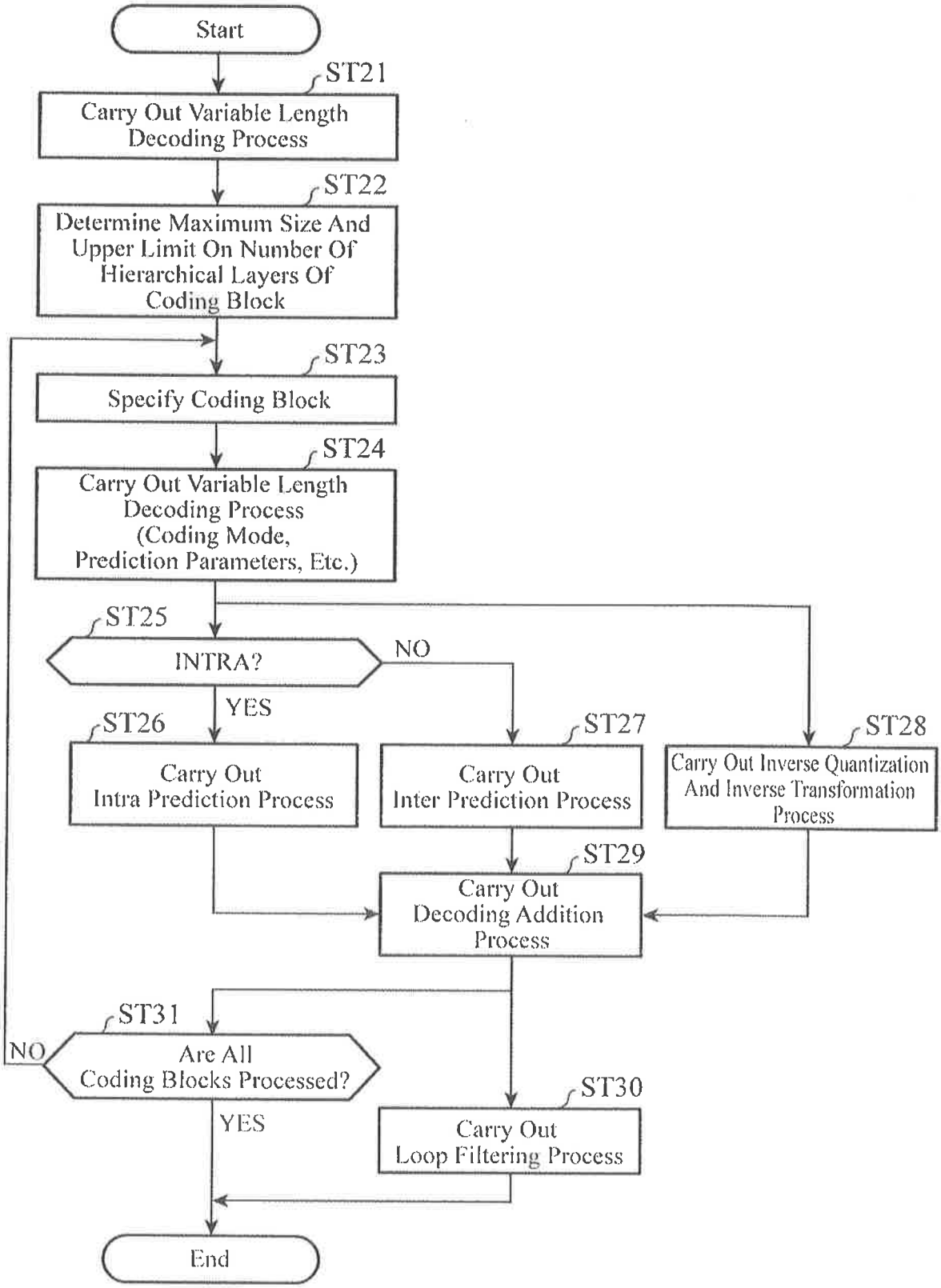

Start
ST21
Carry Out Variable Length Decoding Process
ST22
Determine Maximum Size And Upper Limit On Number Of Hierarchical Layers Of Coding Block
ST23
Specify Coding Block
ST24
Carry Out Variable Length Decoding Process (Coding Mode, Prediction Parameters, Etc.)
ST25
INTRA?
NO
YES
ST26
Carry Out Intra Prediction Process
ST27
Carry Out Inter Prediction Process
ST28
Carry Out Inverse Quantization And Inverse Transformation Process
ST29
Carry Out Decoding Addition Process
ST31
Are All Coding Blocks Processed?
NO
YES
ST30
Carry Out Loop Filtering Process
End

FIG.12

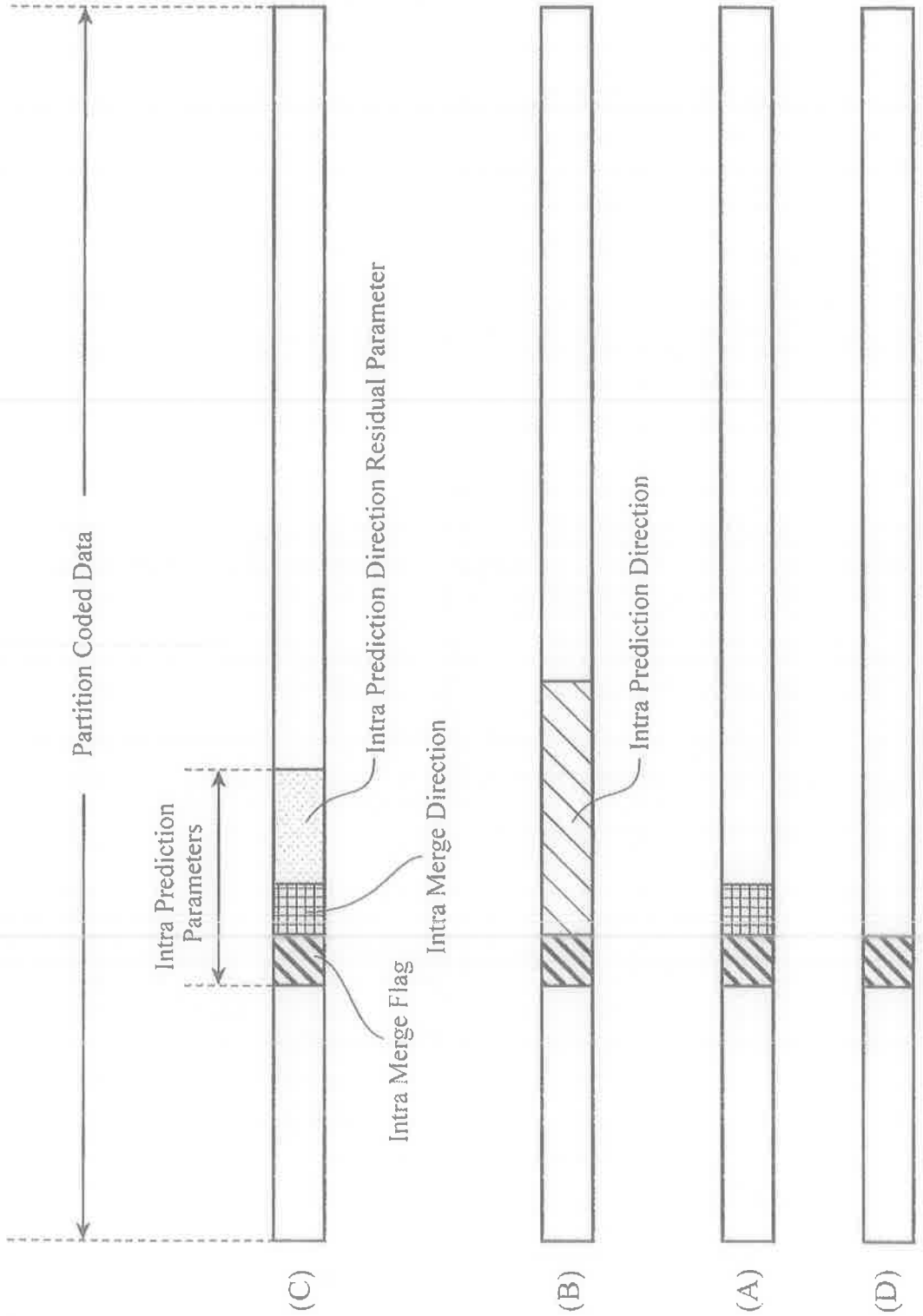
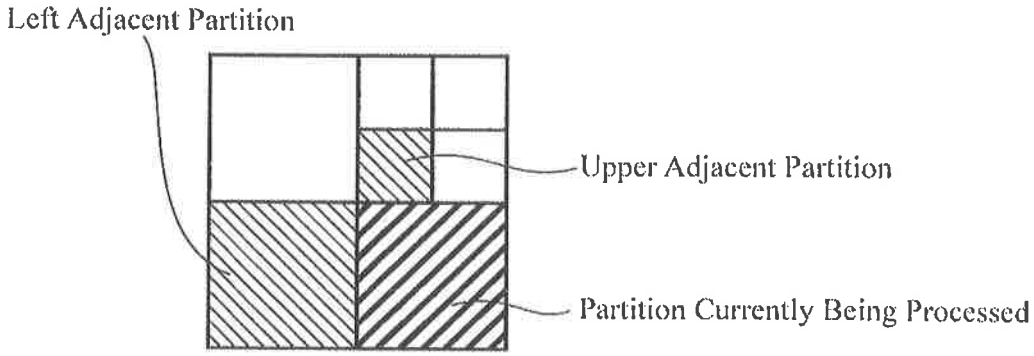
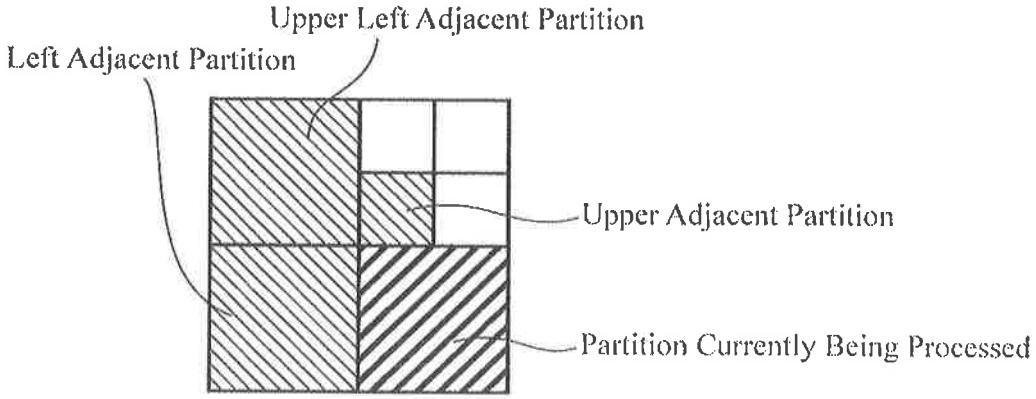

Partition Coded Data
Intra Prediction Parameters
Intra Prediction Direction Residual Parameter
Intra Merge Direction
Intra Merge Flag
Intra Prediction Direction
(C)
(B)
(A)
(D)

FIG.13

(A)


Left Adjacent Partition
Upper Adjacent Partition
Partition Currently Being Processed

(B)


Upper Left Adjacent Partition
Left Adjacent Partition
Upper Adjacent Partition
Partition Currently Being Processed

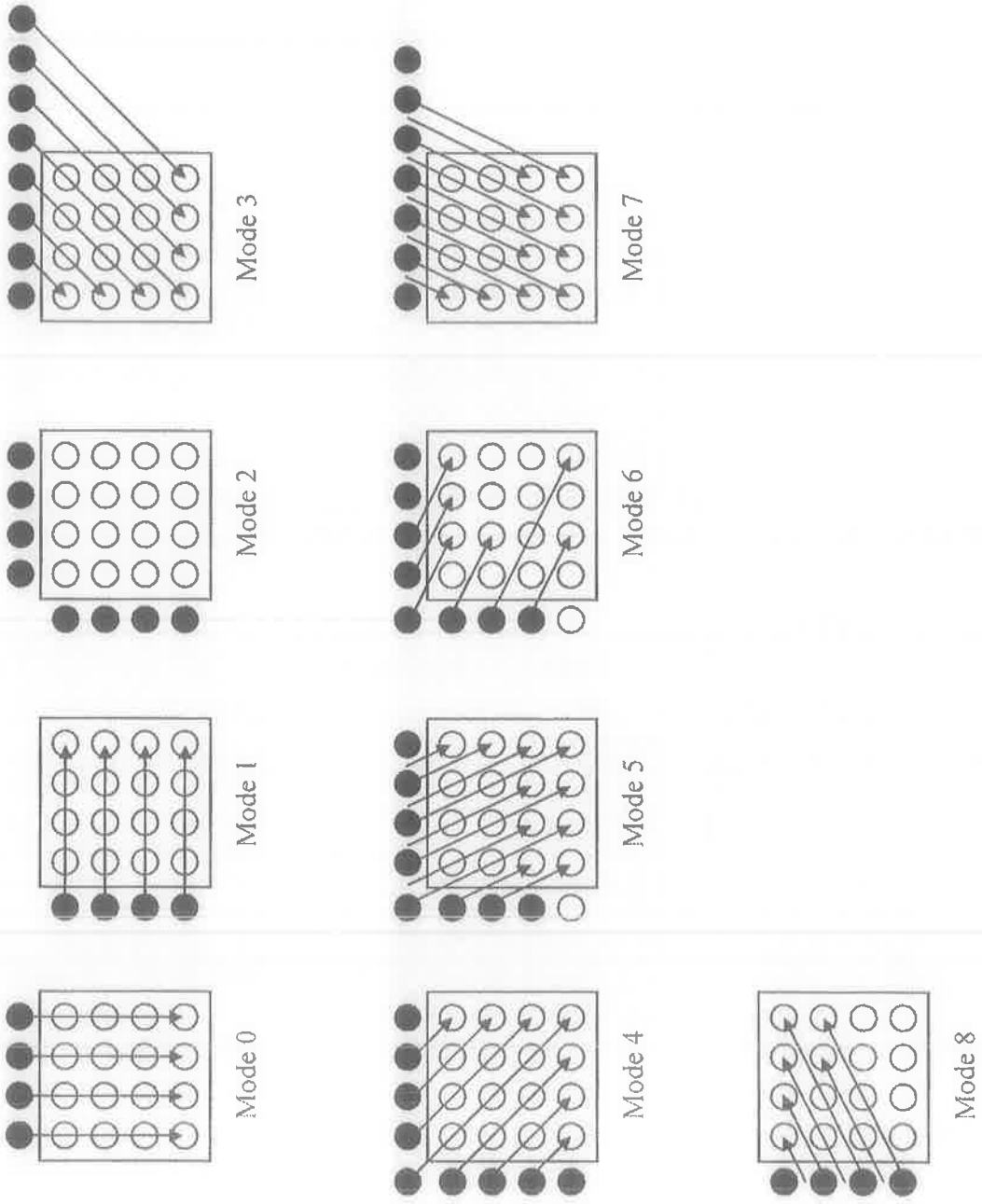


FIG.14