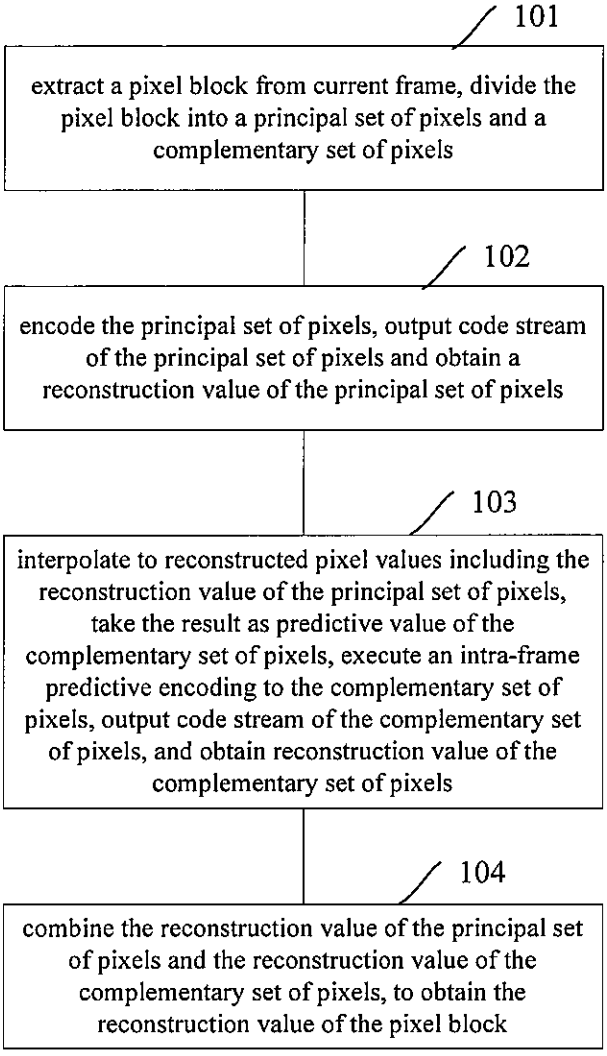

101
extract a pixel block from current frame, divide the pixel block into a principal set of pixels and a complementary set of pixels
102
encode the principal set of pixels, output code stream of the principal set of pixels and obtain a reconstruction value of the principal set of pixels
103
interpolate to reconstructed pixel values including the reconstruction value of the principal set of pixels, take the result as predictive value of the complementary set of pixels, execute an intra-frame predictive encoding to the complementary set of pixels, output code stream of the complementary set of pixels, and obtain reconstruction value of the complementary set of pixels
104
combine the reconstruction value of the principal set of pixels and the reconstruction value of the complementary set of pixels, to obtain the reconstruction value of the pixel block

FIG.1

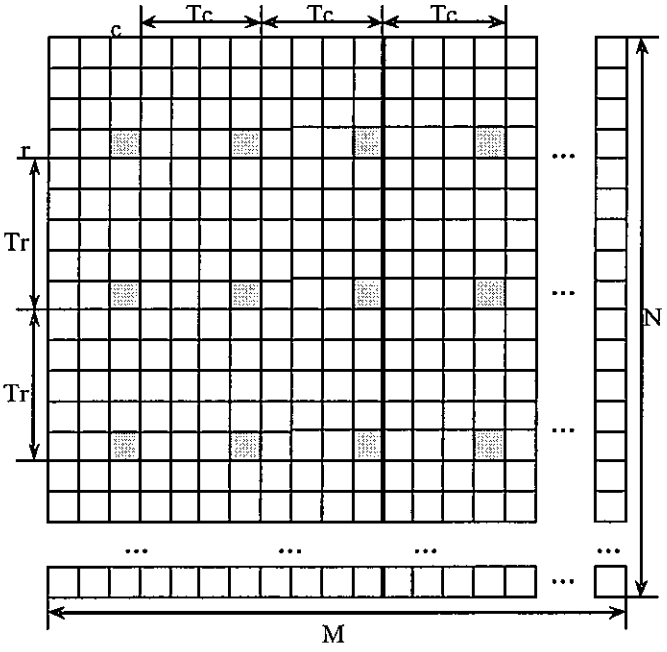


FIG.2

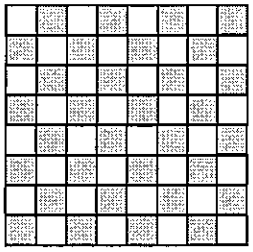


FIG.3

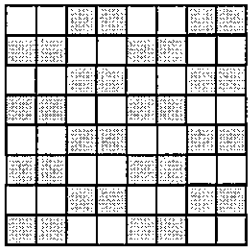


FIG.4

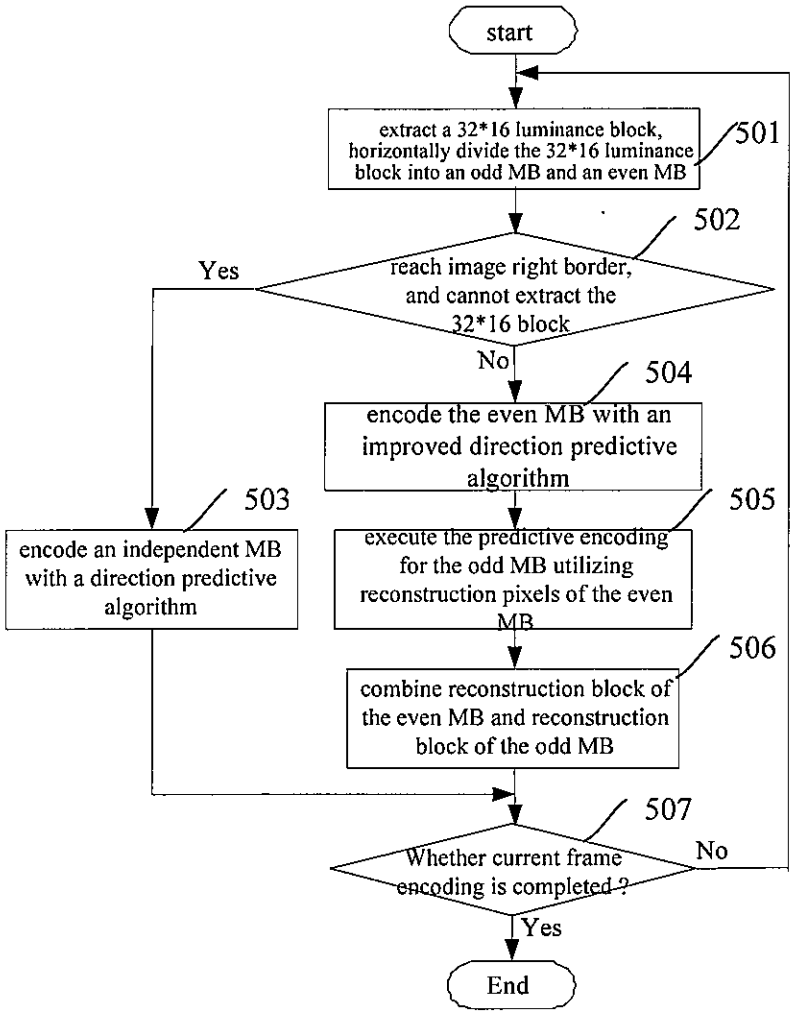

start
extract a 32*16 luminance block, horizontally divide the 32*16 luminance block into an odd MB and an even MB
501
502
reach image right border, and cannot extract the 32*16 block
Yes
No
504
encode the even MB with an improved direction predictive algorithm
503
encode an independent MB with a direction predictive algorithm
505
execute the predictive encoding for the odd MB utilizing reconstruction pixels of the even MB
506
combine reconstruction block of the even MB and reconstruction block of the odd MB
507
Whether current frame encoding is completed ?
No
Yes
End

FIG.5

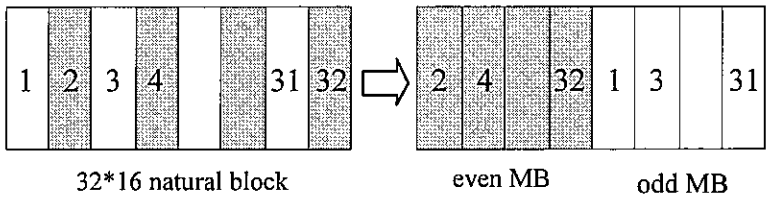


FIG.6

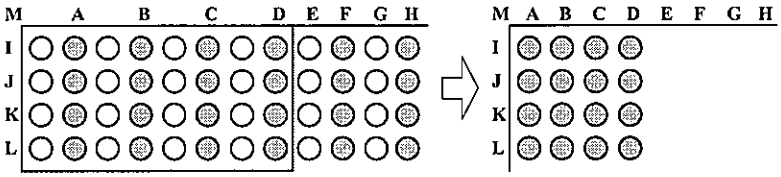


FIG.7



FIG.8

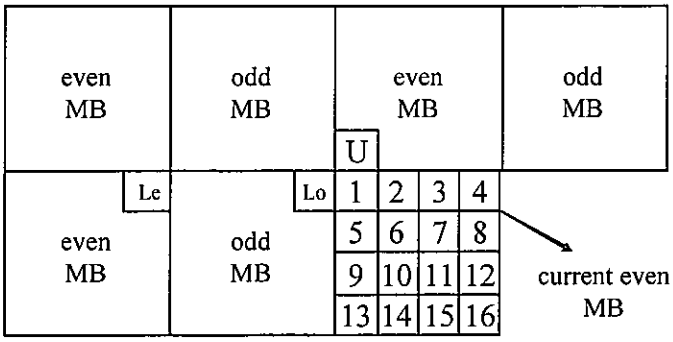

even MB
odd MB
even MB
odd MB
U
Le
Lo
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
even MB
odd MB
current even MB

FIG.9

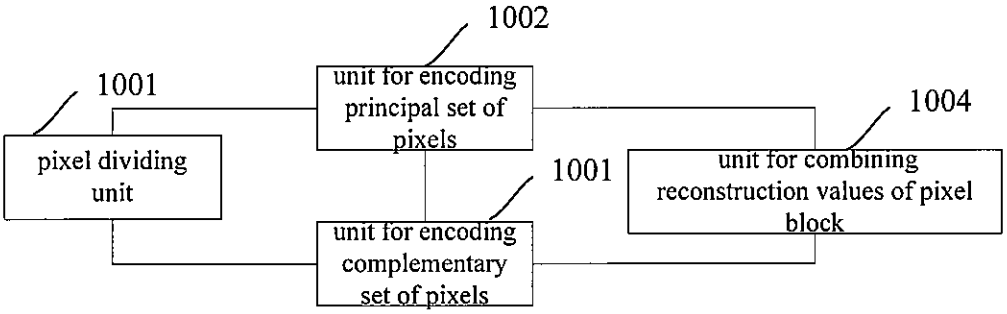

1002
1001
unit for encoding principal set of pixels
1004
pixel dividing unit
1001
unit for combining reconstruction values of pixel block
unit for encoding complementary set of pixels

FIG.10

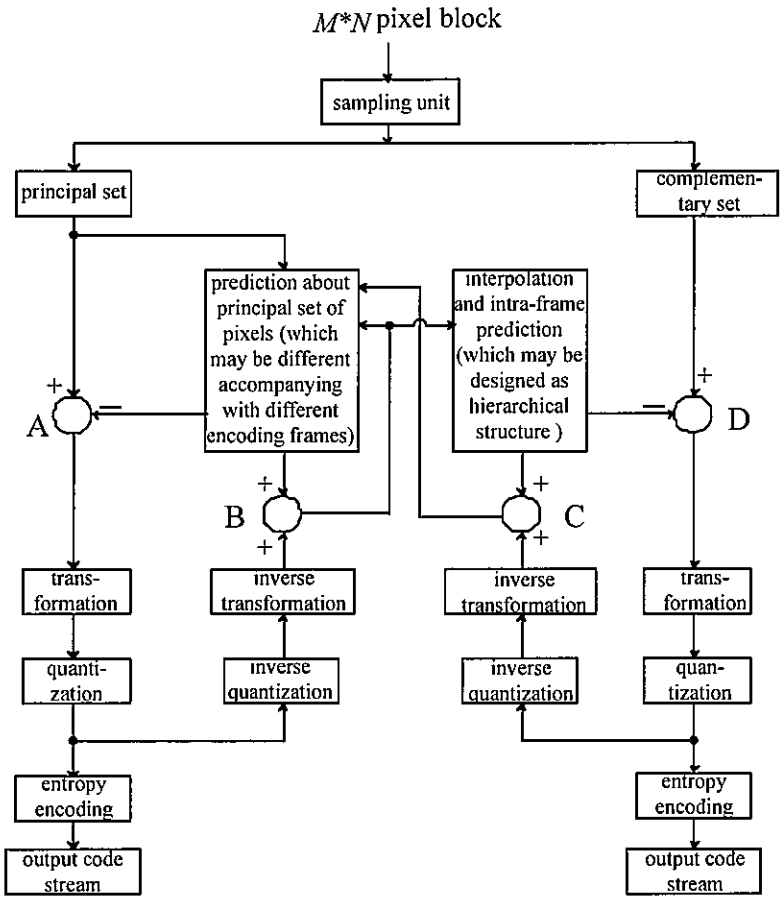

M*N pixel block
sampling unit
principal set
complemen-
tary set
prediction about principal set of pixels (which may be different accompanying with different encoding frames)
interpolation and intra-frame prediction (which may be designed as hierarchical structure)
A
B
C
D
trans-
formation
quanti-
zation
entropy
encoding
output code
stream
inverse
transformation
inverse
quantization
inverse
transformation
inverse
quantization
trans-
formation
quan-
tization
entropy
encoding
output code
stream

FIG.11

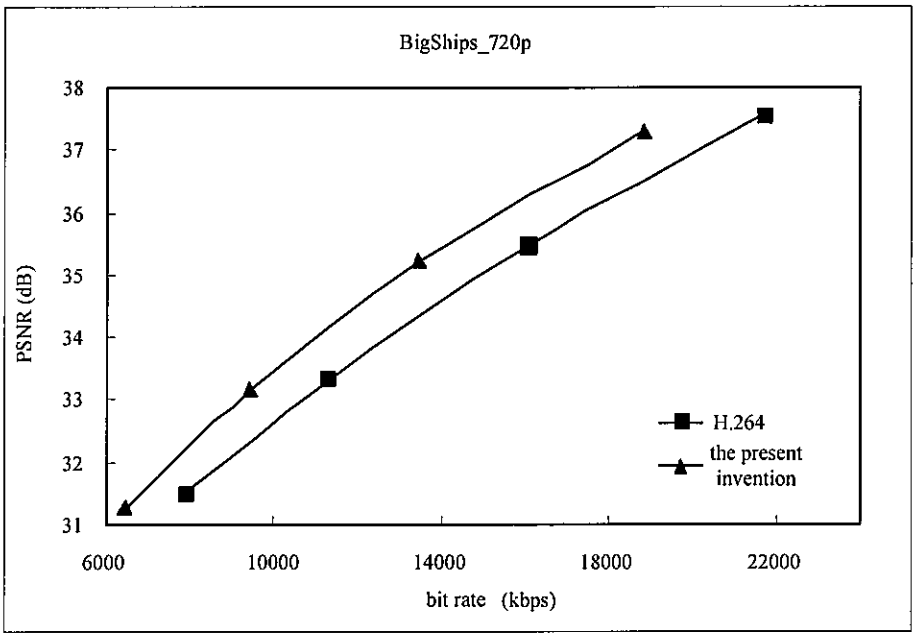

BigShips_720p
PSNR (dB)
38
37
36
35
34
33
32
31
6000
10000
14000
18000
22000
bit rate (kbps)
H.264
the present invention

FIG.12