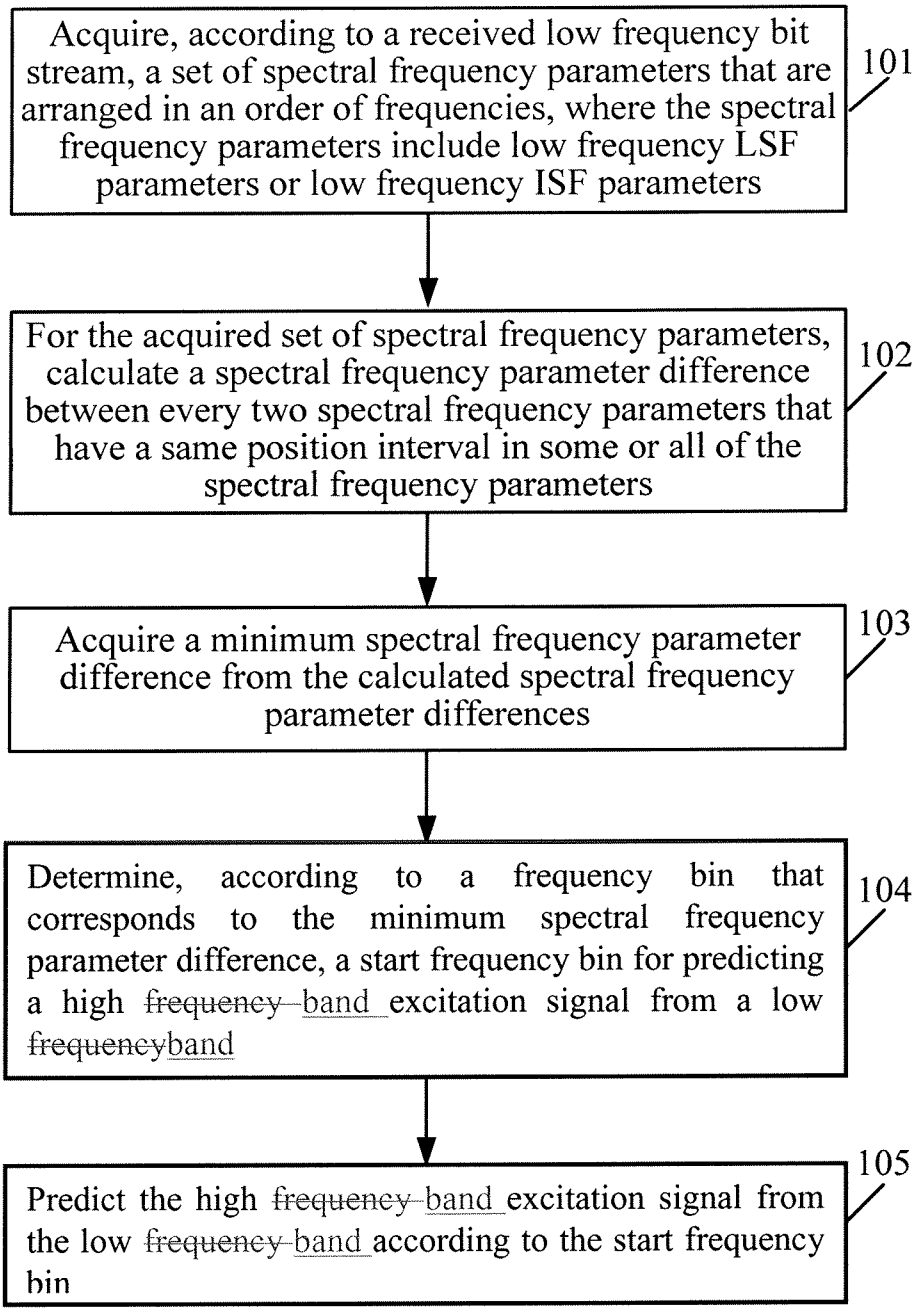

Acquire, according to a received low frequency bit stream, a set of spectral frequency parameters that are arranged in an order of frequencies, where the spectral frequency parameters include low frequency LSF parameters or low frequency ISF parameters
101
For the acquired set of spectral frequency parameters, calculate a spectral frequency parameter difference between every two spectral frequency parameters that have a same position interval in some or all of the spectral frequency parameters
102
Acquire a minimum spectral frequency parameter difference from the calculated spectral frequency parameter differences
103
Determine, according to a frequency bin that corresponds to the minimum spectral frequency parameter difference, a start frequency bin for predicting a high ~~frequency~~ band excitation signal from a low ~~frequency~~band
104
Predict the high ~~frequency~~ band excitation signal from the low ~~frequency~~ band according to the start frequency bin
105

FIG. 1

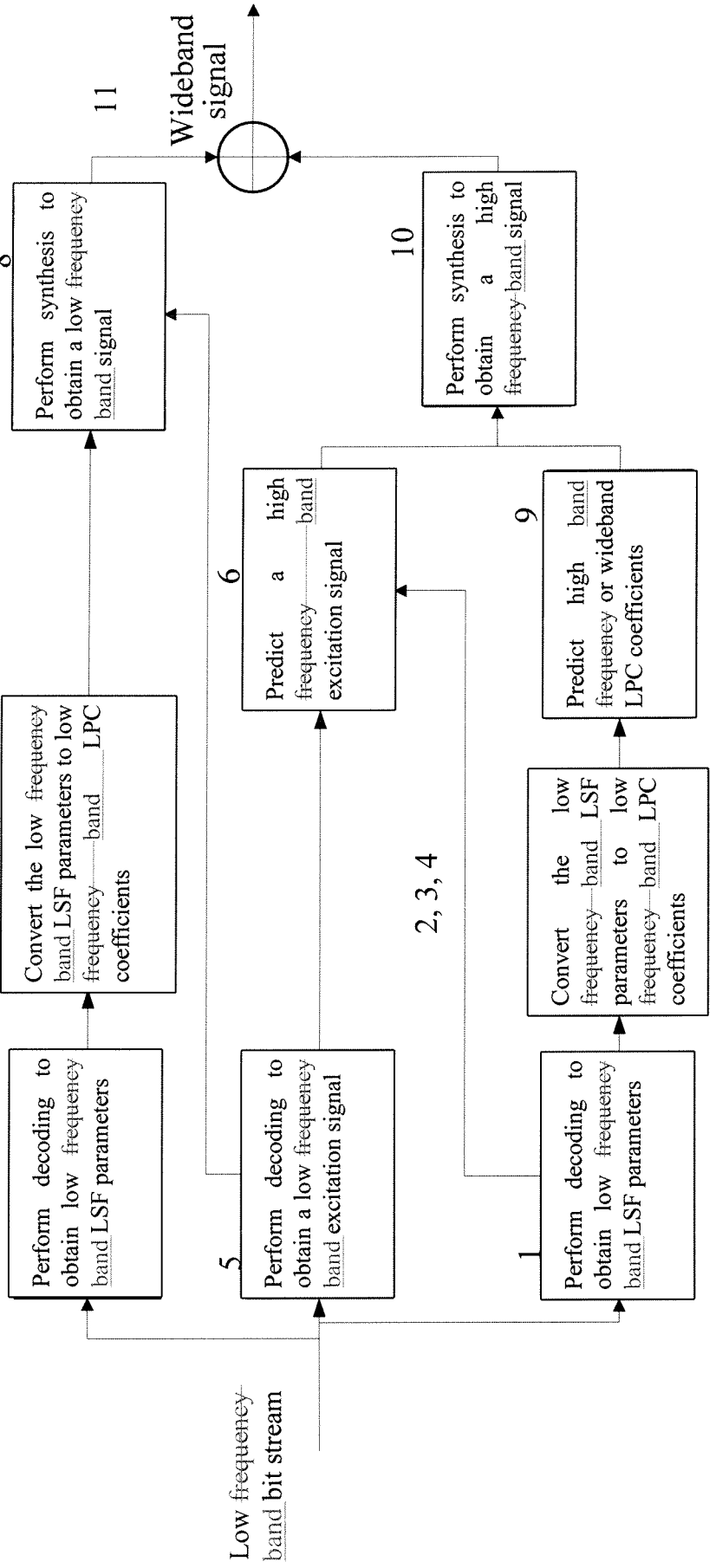

Low frequency band bit stream
Perform decoding to obtain low frequency band LSF parameters
Perform decoding to obtain a low frequency band excitation signal
Perform decoding to obtain low frequency band LSF parameters
Convert the low frequency band LSF parameters to low frequency band LPC coefficients
Predict a high frequency band excitation signal
Convert the low frequency band LSF parameters to low frequency band LPC coefficients
Predict high band frequency or wideband LPC coefficients
Perform synthesis to obtain a high frequency band signal
Perform synthesis to obtain a low frequency band signal
Wideband signal
1
2, 3, 4
5
6
7
8
9
10
11

FIG. 2

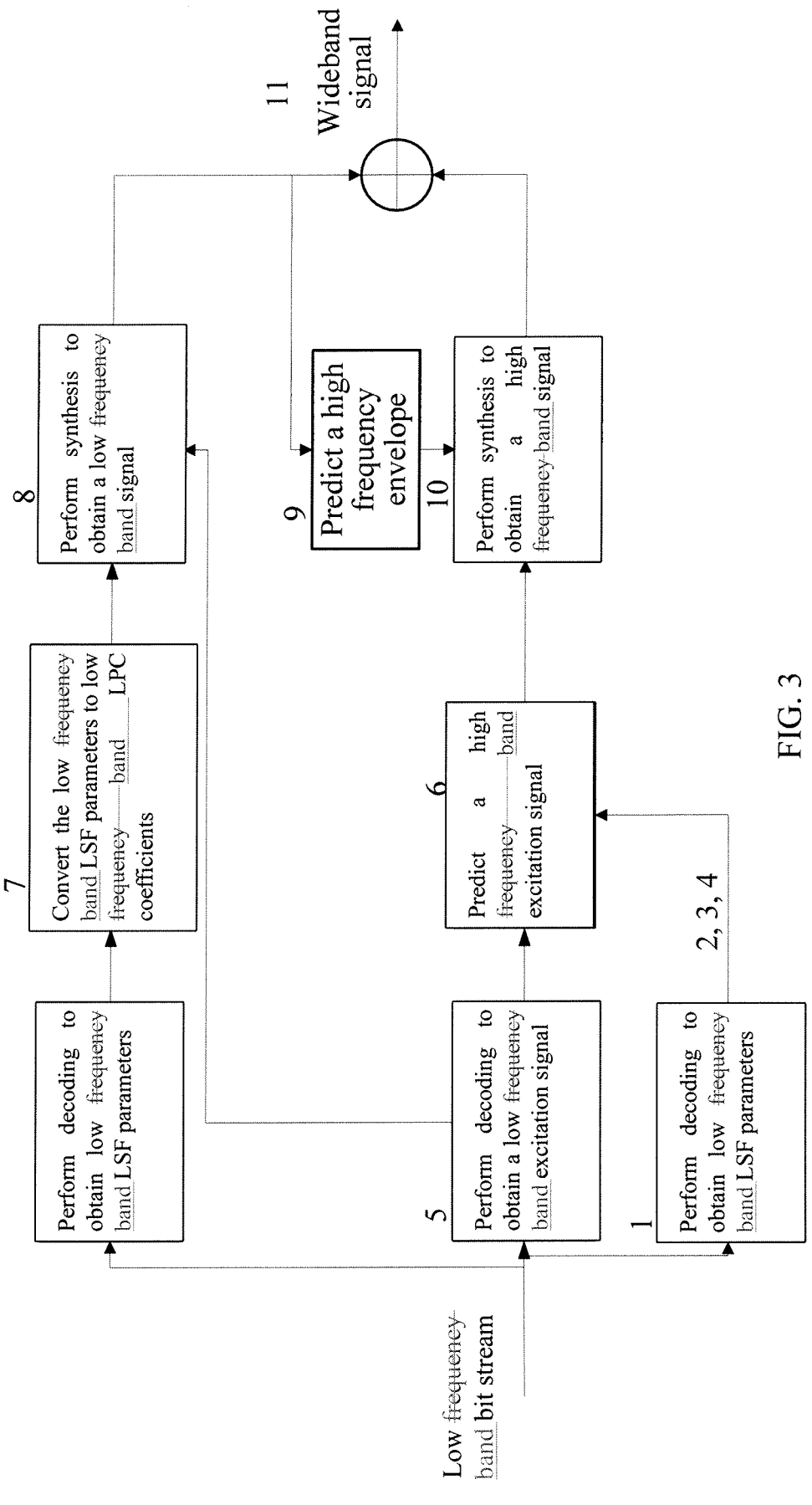

Low frequency band bit stream
Perform decoding to obtain low frequency band LSF parameters
1
Perform decoding to obtain a low frequency band excitation signal
5
Predict a high frequency band excitation signal
6
Convert the low frequency band LSF parameters to low frequency band LPC coefficients
7
Perform synthesis to obtain a low frequency band signal
8
Predict a high frequency envelope
9
Perform synthesis to obtain a high frequency band signal
10
11
Wideband signal
2, 3, 4

FIG. 3

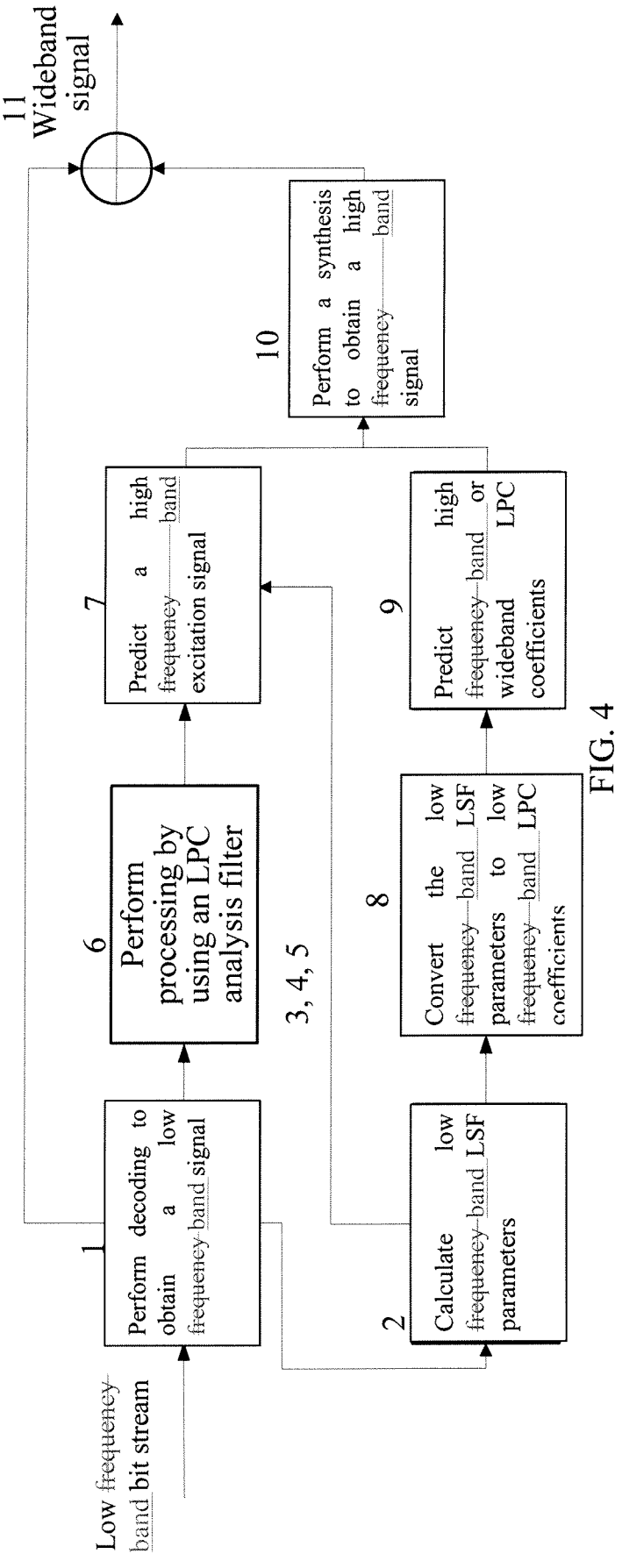

Low frequency band bit stream
1
Perform decoding to obtain a low frequency band signal
2
Calculate low frequency band LSF parameters
3, 4, 5
6
Perform processing by using an LPC analysis filter
7
Predict a high frequency band excitation signal
8
Convert the low frequency band LSF parameters to low frequency band LPC coefficients
9
Predict high frequency band or wideband LPC coefficients
10
Perform a synthesis to obtain a high frequency band signal
11
Wideband signal

FIG. 4

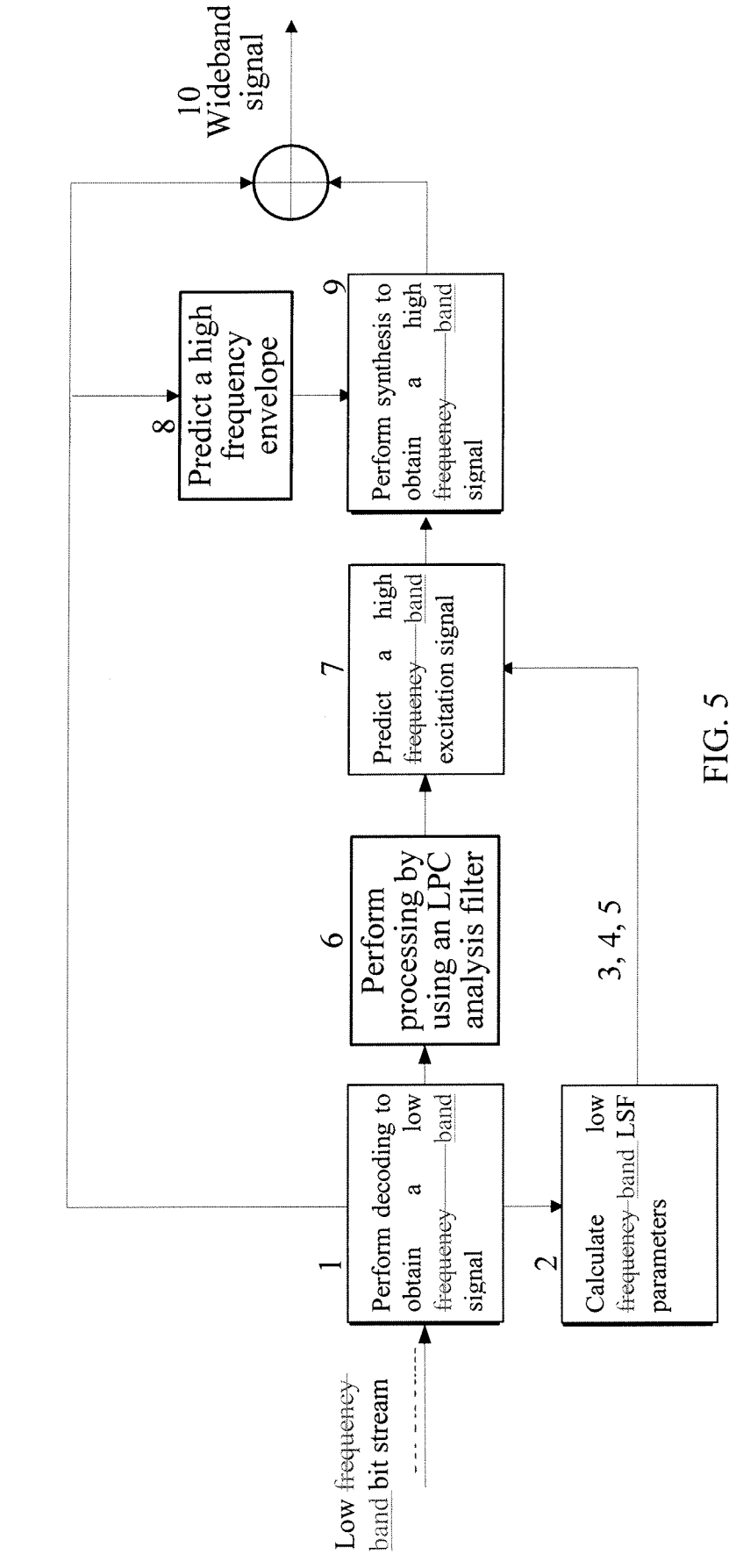

Low frequency band bit stream
1
Perform decoding to obtain a low frequency band signal
2
Calculate low frequency band LSF parameters
3, 4, 5
6
Perform processing by using an LPC analysis filter
7
Predict a high frequency band excitation signal
8
Predict a high frequency envelope
9
Perform synthesis to obtain a high frequency band signal
10
Wideband signal

FIG. 5

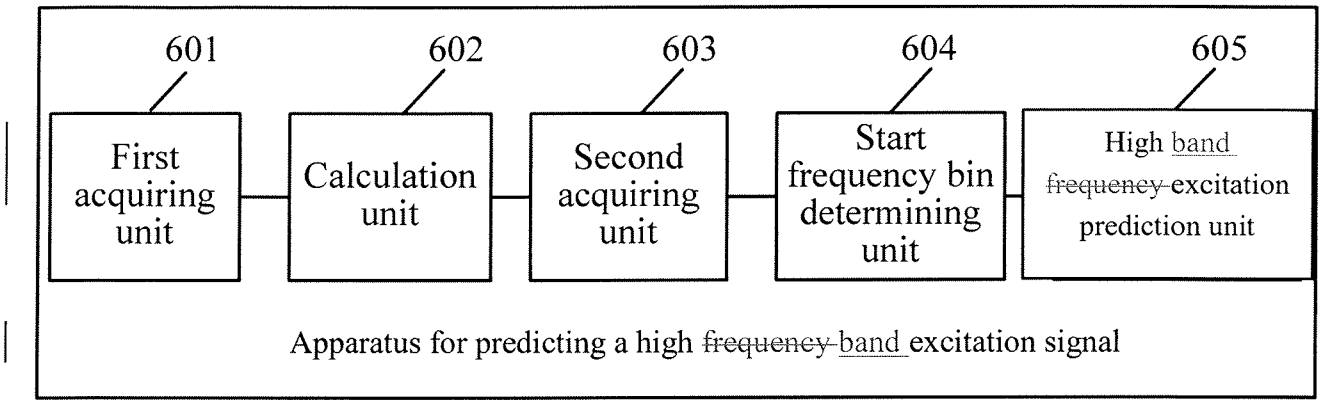

601
602
603
604
605
First acquiring unit
Calculation unit
Second acquiring unit
Start frequency bin determining unit
High band ~~frequency~~ excitation prediction unit
Apparatus for predicting a high ~~frequency~~ band excitation signal

FIG. 6

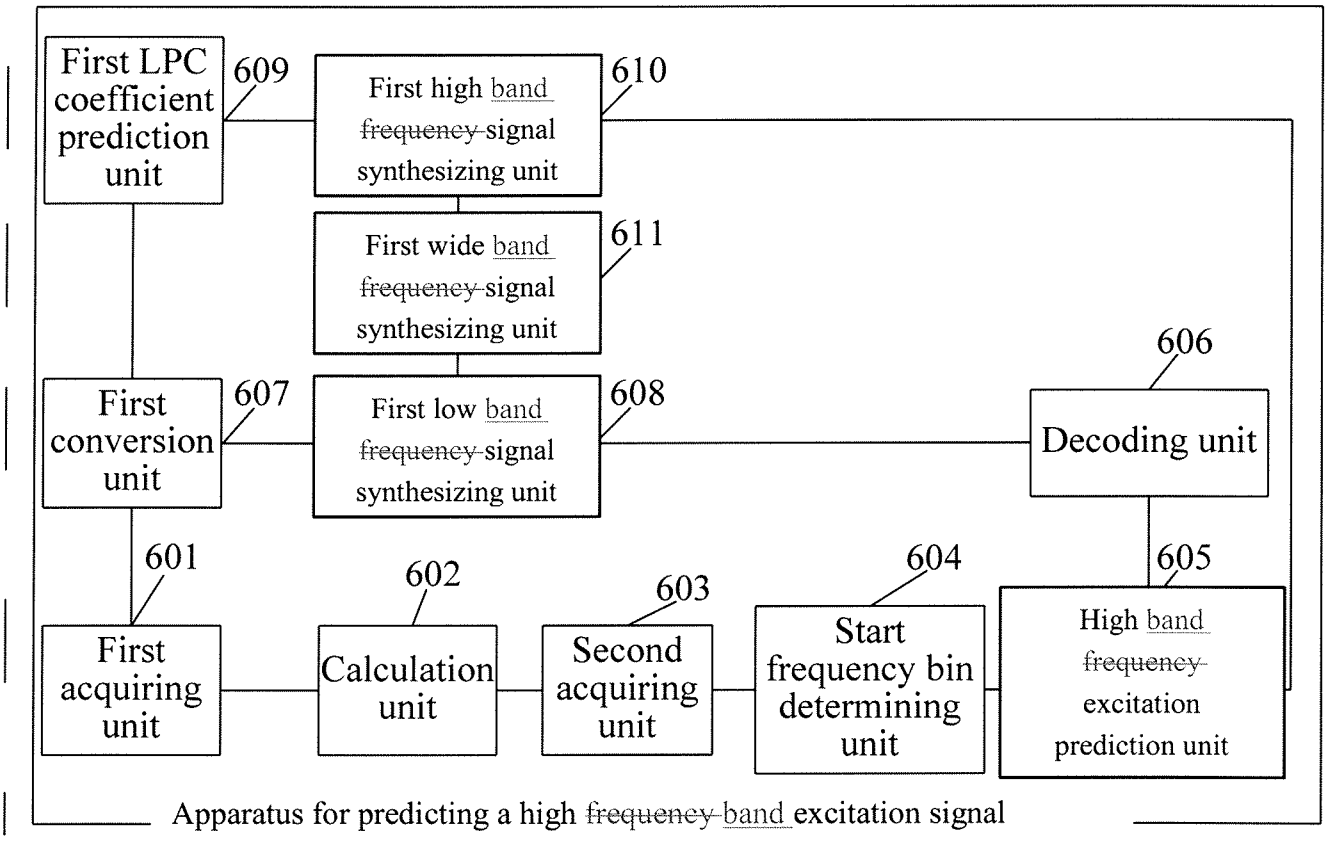

First LPC coefficient prediction unit
609
First high band ~~frequency~~ signal synthesizing unit
610
First wide band ~~frequency~~ signal synthesizing unit
611
606
First conversion unit
607
First low band ~~frequency~~ signal synthesizing unit
608
Decoding unit
601
602
603
604
605
First acquiring unit
Calculation unit
Second acquiring unit
Start frequency bin determining unit
High band ~~frequency~~ excitation prediction unit
Apparatus for predicting a high ~~frequency~~ band excitation signal

FIG. 7

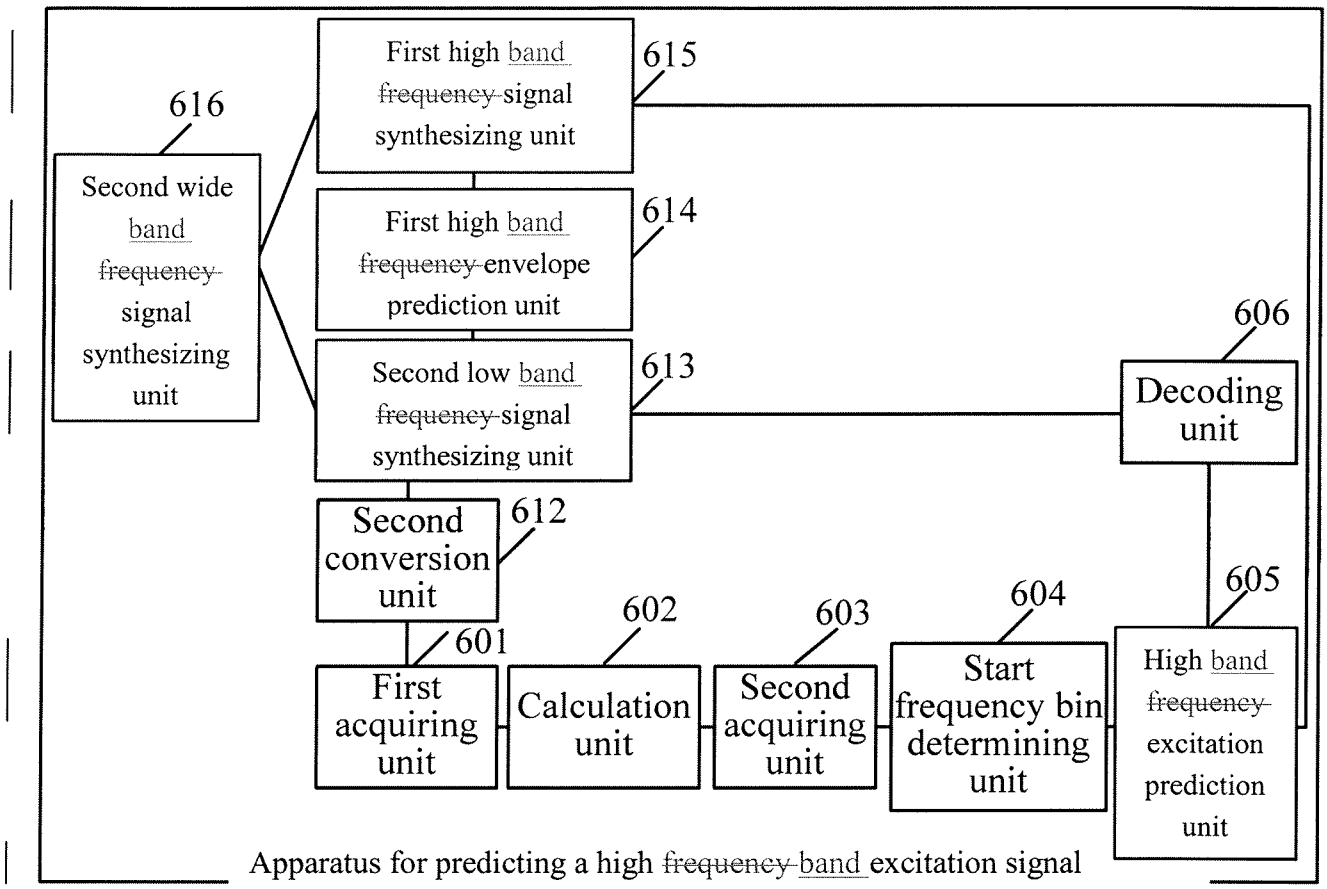

First high band frequency signal synthesizing unit
615
616
Second wide band frequency signal synthesizing unit
First high band frequency envelope prediction unit
614
606
Second low band frequency signal synthesizing unit
613
Decoding unit
Second conversion unit
612
605
602
603
604
601
First acquiring unit
Calculation unit
Second acquiring unit
Start frequency bin determining unit
High band frequency excitation prediction unit
Apparatus for predicting a high frequency band excitation signal

FIG. 8

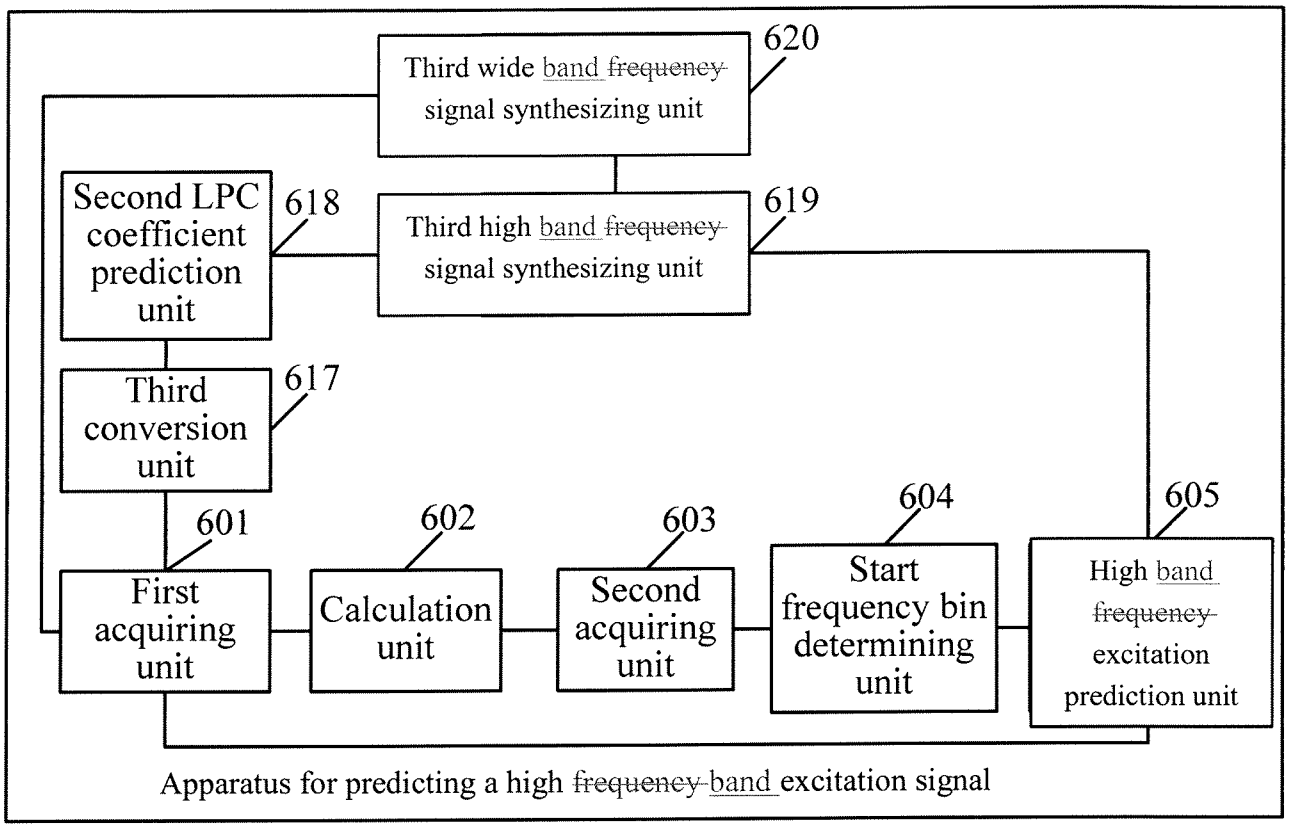

Third wide band frequency signal synthesizing unit
620
Second LPC coefficient prediction unit
618
Third high band frequency signal synthesizing unit
619
Third conversion unit
617
601
602
603
604
605
First acquiring unit
Calculation unit
Second acquiring unit
Start frequency bin determining unit
High band frequency excitation prediction unit
Apparatus for predicting a high frequency band excitation signal

FIG. 9

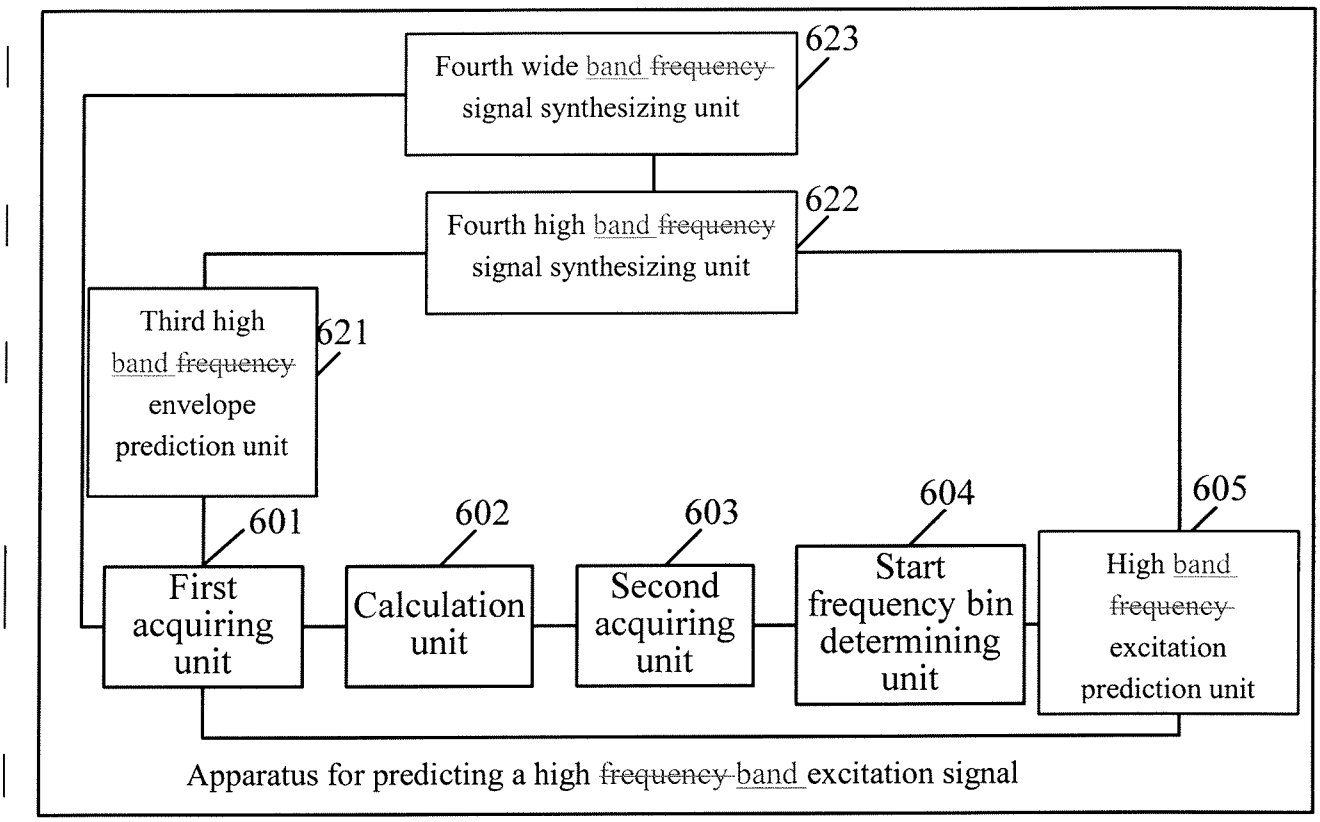

Fourth wide band frequency signal synthesizing unit
623
Fourth high band frequency signal synthesizing unit
622
Third high band frequency envelope prediction unit
621
601
First acquiring unit
602
Calculation unit
603
Second acquiring unit
604
Start frequency bin determining unit
605
High band frequency excitation prediction unit
Apparatus for predicting a high frequency band excitation signal

FIG. 10

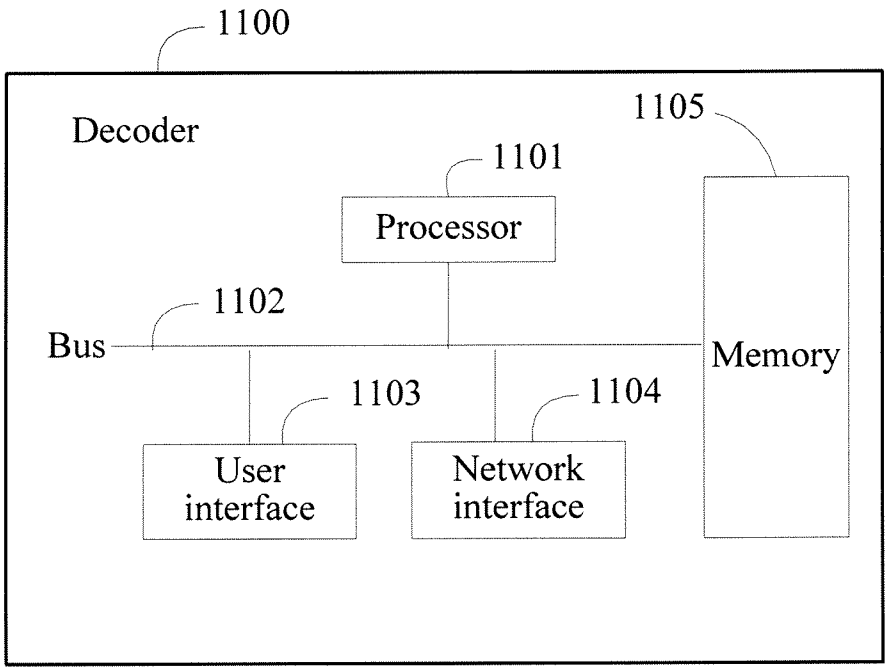

1100
Decoder
1105
1101
Processor
1102
Bus
Memory
1103
1104
User interface
Network interface

FIG. 11