CLAIMS

What is claimed is:

1. A method for encoding video data, applicable to an encoder, the method comprising:

acquiring video data, wherein the video data comprises a timestamp;

configuring an encoding parameter of the encoder, wherein the encoding parameter comprises an encoding bitrate;

determining a first time interval between two adjacent video frames in a group of pictures (GOP) based on the encoding parameter; and

adjusting a number of video frames in the GOP based on the first time interval by encoding the video data based on the encoding parameter;

wherein configuring the encoding parameter of the encoder comprises:

acquiring a target frame rate, a target bitrate, a target number of frames in the GOP, and an encoding period of the GOP; and

configuring an encoding frame rate and the encoding bitrate of the encoder based on the target frame rate, the target bitrate, the target number of frames, and the encoding period in an encoding process of the encoder;

wherein adjusting the number of video frames in the GOP based on the first time interval by encoding the video data based on the encoding parameter comprises:

acquiring an encoding timestamp by adjusting the timestamp of the video data based on the first time interval; and

encoding the video data based on the encoding bitrate, the encoding period, and the encoding timestamp;

wherein encoding the video data based on the encoding bitrate, the encoding period, and the encoding timestamp comprises:

acquiring encoding time of each video frame in the video data from the encoding timestamp;

determining video frames in the GOP based on the encoding time and the encoding period;

acquiring encoded video data comprising a plurality of GOPs by encoding video frames in the plurality of GOPs based on the encoding bitrate; and

acquiring a timestamp of the encoded video data by adjusting the encoding timestamp.

2. The method according to claim 1, wherein configuring the encoding frame rate and the encoding bitrate of the encoder based on the target frame rate, the target bitrate, the target number

of frames, and the encoding period in the encoding process of the encoder comprises:

calculating a conversion factor using the target frame rate, the target number of frames, and the encoding period; and

acquiring the encoding frame rate and the encoding bitrate by converting the target frame rate and the target bitrate based on the conversion factor.

3. The method according to claim 2, wherein calculating the conversion factor using the target frame rate, the target number of frames, and the encoding period comprises:

acquiring a first product by calculating a product of the target number of frames and the encoding period; and

acquiring the conversion factor by calculating a ratio of the target frame rate to the first product.

4. The method according to any one of claims 1 to 3, wherein the encoding period is an integral multiple of 1 second.

5. The method according to claim 2 or 3, wherein acquiring the encoding frame rate and the encoding bitrate by converting the target frame rate and the target bitrate based on the conversion factor comprises:

acquiring the encoding frame rate by calculating a ratio of the target frame rate to the conversion factor; and

acquiring the encoding bitrate by calculating a ratio of the target bitrate to the conversion factor.

6. The method according to any one of claims 1 to 3, wherein the encoding parameter comprises the encoding frame rate, and determining the first time interval between the two adjacent video frames in the GOP based on the encoding parameter comprises:

calculating a time interval between the two adjacent video frames in the GOP using the encoding frame rate, and determining the time interval between the two adjacent video frames in the GOP as the first time interval.

7. The method according to claim 1, wherein determining the video frames in the GOP based on the encoding time and the encoding period comprises:

determining a start video frame and an end video frame in the GOP based on the encoding period and the encoding time; and

determining the start video frame, the end video frame, and video frames between the start video frame and the end video frame as the video frames in the GOP.

8. The method according to claim 7, wherein acquiring the encoded video data comprising the plurality of GOPs by encoding the video frames in the plurality of GOPs based on the encoding bitrate comprises:

in response to encoding the video frames in the plurality of GOPs based on the encoding bitrate, encoding the start video frame as a key frame; and

encoding video frames behind the start video frame in each of the GOPs as predicted frames.

9. The method according to claim 1, wherein the encoding parameter comprises the target frame rate, and acquiring the timestamp of the encoded video data by adjusting the encoding timestamp comprises:

acquiring a second time interval by calculating a time interval between two adjacent video frames in the encoded video data based on the target frame rate; and

adjusting a time interval between two adjacent video frames in the encoding timestamp to the second time interval, wherein the second time interval is not equal to the first time interval.

10. An apparatus for encoding video data, applicable to an encoder, the apparatus comprising:

a video data acquiring module, configured to acquire video data, wherein the video data comprises a timestamp;

an encoding parameter configuring module, configured to configure an encoding parameter of the encoder, wherein the encoding parameter comprises an encoding bitrate;

a first time interval determining module, configured to determine a first time interval between two adjacent video frames in a group of pictures (GOP) based on the encoding parameter; and

an encoding module, configured to adjust a number of video frames in the GOP based on the first time interval by encoding the video data based on the encoding parameter;

wherein the encoding parameter configuring module is further configured to:

acquire a target frame rate, a target bitrate, a target number of frames in the GOP, and an encoding period of the GOP; and

configure an encoding frame rate and the encoding bitrate of the encoder based on the target frame rate, the target bitrate, the target number of frames, and the encoding period in an encoding process of the encoder; and

wherein the encoding module is further configured to:

acquire an encoding timestamp by adjusting the timestamp of the video data based on the first time interval;

encode the video data based on the encoding bitrate, the encoding period, and the encoding timestamp;

acquire encoding time of each video frame in the video data from the encoding timestamp;

determine video frames in the GOP based on the encoding time and the encoding period;

acquire encoded video data comprising a plurality of GOPs by encoding video frames in the plurality of GOPs based on the encoding bitrate; and

acquire a timestamp of the encoded video data by adjusting the encoding timestamp.

11. A device for encoding video data, comprising:

one or more processors; and

one or more memories, configured for storing one or more programs;

wherein the one or more processors, when running the one or more programs, are caused to perform the method for encoding video data as defined in any one of claims 1 to 9.

12. A non-transitory computer-readable storage medium, storing a computer program, wherein the computer program, when run by a processor, causes the processor to perform the method for encoding video data as defined in any one of claims 1 to 9.