CLAIMS

1. A method for determining a de-interleaving position, wherein the method comprises:

obtaining a first interleaved data stream, wherein the first interleaved data stream is a data stream on which forward error correction, FEC, encoding is performed;

obtaining, based on an interleaving granularity of the first interleaved data stream, N sub-data streams corresponding to the first interleaved data stream, wherein N is an interleaving depth of the first interleaved data stream, and N is a positive integer greater than 1; and

determining a de-interleaving position based on FEC codeword boundaries of at least two of the N sub-data streams.

2. The method according to claim 1, wherein the N sub-data streams are arranged in sequence, and the determining a de-interleaving position based on FEC codeword boundaries of at least two of the N sub-data streams comprises:

determining, based on an FEC codeword boundary of a first sub-data stream being after an FEC codeword boundary of a second sub-data stream, that the de-interleaving position is the FEC codeword boundary of the second sub-data stream, wherein

the first sub-data stream and the second sub-data stream are two adjacent sub-data streams in the N sub-data streams.

3. The method according to claim 2, wherein the first sub-data stream is before the second sub-data stream in an arrangement sequence.

4. The method according to claim 2 or 3, wherein there is an interval of one symbol between the FEC codeword boundary of the first sub-data stream and the FEC codeword boundary of the second sub-data stream.

5. The method according to claim 1, wherein the N sub-data streams are arranged in sequence, and the determining a de-interleaving position based on FEC codeword boundaries of at least two of the N sub-data streams comprises:

determining, based on alignment of FEC codeword boundaries of all of the N sub-data streams, that the de-interleaving position is an FEC codeword boundary of a first sub-data stream, wherein

the first sub-data stream has a highest ranking in the N sub-data streams in an arrangement sequence.

6. The method according to any one of claims 1 to 5, wherein the method further comprises:

based on the de-interleaving position, obtaining a first de-interleaved data stream corresponding to the first interleaved data stream.

7. The method according to claim 6, wherein the N sub-data streams are arranged in sequence,

and the based on the de-interleaving position, obtaining a first de-interleaved data stream corresponding to the first interleaved data stream comprises:

determining a combination sequence of the N sub-data streams based on the de-interleaving position and the arrangement sequence of the N sub-data streams; and

combining data of the first interleaved data stream based on the combination sequence, to obtain the first de-interleaved data stream.

8. The method according to any one of claims 1 to 7, wherein the obtaining, based on an interleaving granularity of the first interleaved data stream, N sub-data streams corresponding to the first interleaved data stream comprises:

selecting a data stream distribution start position from the first interleaved data stream, and distributing the first interleaved data stream to the N sub-data streams based on the interleaving granularity of the first interleaved data stream, wherein

the data stream distribution start position is a position randomly selected from the first interleaved data stream.

9. The method according to any one of claims 1 to 8, wherein the obtaining, based on an interleaving granularity of the first interleaved data stream, N sub-data streams corresponding to the first interleaved data stream comprises:

distributing the data of the first interleaved data stream to the N sub-data streams in a round-robin manner based on the interleaving granularity of the first interleaved data stream.

10. The method according to any one of claims 1 to 9, wherein the method further comprises:

determining an FEC codeword boundary of each of the N sub-data streams.

11. The method according to claim 10, wherein the determining an FEC codeword boundary of each of the N sub-data streams comprises:

determining the FEC codeword boundary of each of the N sub-data streams based on an FEC codeword characteristic.

12. The method according to claim 11, wherein there is a cyclic shift relationship between FEC codewords of each of the N sub-data streams, and the determining the FEC codeword boundary of each of the N sub-data streams based on an FEC codeword characteristic comprises:

performing an inverse cyclic shift on the obtained FEC codewords of each of the N sub-data streams; and

determining the FEC codeword boundary of each of the N sub-data streams after the inverse cyclic shift based on the FEC codeword characteristic.

13. The method according to any one of claims 1 to 12, wherein the first interleaved data stream does not comprise a periodic alignment data segment, and the periodic alignment data segment comprises an alignment marker, a frame alignment word, or pilot data.

14. The method according to any one of claims 1 to 13, wherein an FEC encoding mode of the first interleaved data stream is FEC encoding of a non-concatenated code or FEC encoding of a concatenated code.

15. The method according to any one of claims 1 to 14, wherein N is 4 or 8.

16. The method according to any one of claims 1 to 15, wherein the method is performed by a physical layer PHY chip, a forwarding device, or a pluggable module.

17. The method according to any one of claims 1 to 16, wherein a lane rate of the first interleaved data stream is greater than or equal to 200 gigabits per second Gbps.

18. A network device, wherein the network device is configured to perform the method according to any one of claims 1 to 17.

19. A chip, wherein the chip is configured to perform the method according to any one of claims 1 to 17.