

bits may indicate a type of the large-size RU, and a specific quantity of indication bits indicate a location of the large-size RU. The large-size RU that needs to be combined is indicated by indicating two pieces of information: the type of the large-size RU and the location of the large-size RU. The type of the large-size RU refers to a 242-tone RU, a 484-tone RU, or a 996-tone RU.

5 For example, in each of the plurality of user fields with the same STA ID other than the last user field, 2 bits may indicate a type of an RU that needs to be combined with a large-size RU in which a current user is located. For example, types of large-size RUs respectively indicated by setting the 2 bits to 00, 01, and 10 are a 242-tone RU, a 484-tone RU, and a 996-tone RU, and the other 2 bits indicate subsequent large-size RUs of the type.

10 **[00194]** In other words, in each of the plurality of user fields with the same STA ID other than the last user field, 3 bits or 4 bits may indicate information about the large-size RU that needs to be combined with the RU in which the current user is located. For example, when one multi-RU is formed by combining three large-size RUs, there may be a 4-bit indication field in a first user field and a second user field in three user fields corresponding to the three large-size RUs. The 4-bit indication field indicates locations of the second large-size RU and the third large-size RU that
15 need to be combined, so that the multi-RU can be determined. Similarly, when one multi-RU is formed by combining more RUs, the multi-RU can be determined only by setting the 4-bit indication field in all user fields corresponding to RUs other than a last RU.

[00195] For example, for the multi-RU (a 242-tone RU + a 242-tone RU) formed in the
20 combination manner 1 shown in Table 5, there may be a 4-bit indication bit in a user field corresponding to the first 242-tone RU, and 4 bits are set to 0010. The first 2 bits are set to 00 to indicate that a next to-be-combined RU is a 242-tone RU, and the last 2 bits are set to 10 to indicate that the RU is a third RU after a current RU. The user may learn of a location of a specific RU with reference to known resource unit allocation subfield information, to determine the multi-RU.
25 A user field corresponding to the second 242-tone RU may not need to be modified. Therefore, the 4-bit indication bit may indicate a limited multi-RU combination manner.

[00196] It should be further understood that, if indication flexibility needs to be further improved, a quantity of used bits may be further increased. For example, in each of ~~at the~~ plurality of ~~same~~ user fields
30 with the same STA ID other than a last user field, an indication bit of another length indicates information about the large-size RU that needs to be combined with the RU in which the current user is located.

[00197] Optionally, in this embodiment of this application, regardless of the combination of

large-size RUs or the combination of small-size RUs, for a plurality of user fields corresponding to a plurality of RUs that need to be combined, because STA IDs of the plurality of user fields are the same, an indication bit indicating whether each of the plurality of user fields (including a last user field) is the last user field may be further added to the user field, and the indication bit indicates whether the user field is a user field corresponding to a last RU that needs to be combined. In this way, the user may be prevented from considering that the last user field further includes information indicating a location of a next RU. For example, a 1-bit indication is used. The 1 bit in a user field other than the last user field is set to 1, to indicate that the corresponding user field is not the last user field, and the 1 bit in a user field other than the last user field is set to 0, to indicate that the corresponding user field is the last user field.

[00198] It should be noted that, because there is a correspondence between a location of an RU and a location of a user field in a user specific field, an indication of the location of the RU is an indication of the location of the user field corresponding to the RU.

[00199] Optionally, in this embodiment of this application, for a plurality of user fields corresponding to a plurality of RUs that need to be combined, because STA IDs of the plurality of user fields are the same, an indication bit indicating a quantity of RUs that need to be combined may be further added to each of the plurality of user fields (including a last user field), to indicate the quantity of RUs that need to be combined. For example, when four RUs need to be combined, a length of the indication bit may be 2 bits. A value of the indication bit in each user field is the same, so that the user can more accurately read the quantity of RUs that need to be combined.

[00200] In other possible implementations of this application, the signal field may further include a multi-resource unit allocation field (multi-RU allocation field), and the multi-resource unit allocation field includes a plurality of location information indication subfields. One location information indication subfield indicates a location of one RU that needs to be combined into a multi-RU. Two or more of the plurality of location information indication subfields form one group, and a plurality of RUs indicated by one group of location information indication subfields are combined into one multi-RU. On the basis of reading the resource unit allocation subfield, with reference to a plurality of location information indication bits, a user may know an RU allocated to the user based on an order in which the user appears in the user specific field, to further obtain multi-RU combination information on the basis of obtaining an RU allocation form. In this manner, users are still sorted based on an RU appearing sequence, and each user appears for only one time

in the user specific field. Information such as an allocated RU may be obtained by searching for a location of the user.

[00201] Specifically, in a possible implementation, the following provides description with reference to an example shown in FIG. 14. FIG. 14 is a schematic diagram of an example of a signal field according to this application. The signal field further includes a multi-resource unit allocation field, the multi-resource unit allocation field includes a plurality of location information indication subfields, and one location information indication subfield indicates a location of one RU that needs to be combined into a multi-RU. RUs indicated by neighboring location information indication field need to be combined. For example, in the example shown in FIG. 14, the multi-resource unit allocation field includes six location information indication subfields, and one location information indication subfield indicates a location of one RU that needs to be combined into a multi-RU.

[00202] It is assumed that three RUs indicated by a location information indication subfield 1 to a location information indication subfield 4 need to be combined into one multi-RU, and two RUs indicated by a location information indication subfield 5 and a location information indication subfield 6 need to be combined into another multi-RU. As shown in FIG. 15, each rectangle shown in FIG. 15 indicates one RU, a number in the rectangle indicates a specific user corresponding to the RU (or an appearance sequence of a user field), and each row of rectangles corresponds to one 20-MHz bandwidth. It is assumed that the location information indication subfield 1 indicates a location 1, indicating a first rectangle in a first row, and the location information indication subfield 2 indicates a location 2, indicating a second rectangle in a third row. In addition, RUs at the location 1 and the location 2 may be combined. The location information indication subfield 3 also indicates the location 2. To be specific, both of the location information indication subfield 2-3 and the location information indication subfield 2 indicate the RU at the location 2. The location information indication subfield 4 indicates a location 3, indicating a third rectangle in the third row. In addition, the location 3 corresponds to only one location information indication subfield 4. It may be determined that an RU at the location 3 is a last RU included in the one multi-RU, and only the RU indicated by the location information indication subfield 4 and the RU indicated by a previous location information indication subfield (the location information indication subfield 3) need to be combined. Therefore, it may be determined that the multi-RU includes: the RU indicated by the location information indication subfield 1 + the RU indicated by the location

closest to the center 26-tone RU are combined to obtain one multi-RU. When the 2 bits are set to 11, it indicates that the center 26-tone RU and an RU that is within the 242-tone range on the left of the center 26-tone RU and that is closest to the center 26-tone RU are combined to obtain one multi-RU.

5 **[00211]** The RU contiguous to the center 26-tone RU may be understood as an RU before or after the center 26-tone RU. The RU closest to the center 26-tone RU may be or may not be an RU contiguous to the center 26-tone RU. For example, the RU closest to the center 26-tone RU may be an RU that is at coordinates of the center 26-tone RU or on the right of the coordinates of the center 26-tone RU and that is spaced by a plurality of RUs.

10 **[00212]** It should be understood that, in this embodiment of this application, the center 26-tone RU field may be further extended to a plurality of bits, to indicate more combination statues of the center 26-tone RU.

[00213] It should be further understood that an RU, within the 242-tone range, that is closest to or contiguous to the center 26-tone RU may be a 52-tone RU, a 106-tone RU, a 242-tone RU, or the like.

15 **[00214]** In another possible implementation, a combination indication indicating whether the center 26-tone RU and a plurality of RUs are combined may be further set in a user field corresponding to the center 26-tone RU. In other words, the user field corresponding to the center 26-tone RU is modified. In addition, all users need to read the user field corresponding to the center 26-tone RU, and determine whether a STA ID in the user field corresponding to the center 26-tone RU is the same as IDs of the users. If the STA ID in the user field corresponding to the center 26-tone RU is the same as the IDs of the users~~If they are the same~~, the center 26-tone RU and an RU corresponding to the current user field need to be combined.

20 **[00215]** It should be understood that in embodiments of this application, "first", "second", and the like are merely intended to indicate that a plurality of objects are different. For example, a first field and a second field are merely used to indicate different fields. The field itself, a quantity of fields, and the like should not be affected. The foregoing first, second, and the like should not constitute any limitation on embodiments of this application.

25 **[00216]** It should be further understood that division of the manners, cases, categories, and embodiments in embodiments of this application is merely intended for ease of description, and should not constitute a particular limitation. The features in the manners, categories, cases, and
30 embodiments may be combined without contradiction.

[00223] The processing unit 410 is configured to determine a physical layer protocol data unit PPDU. The PPDU includes a signal field, the signal field includes a resource unit allocation subfield and a combination indication corresponding to the resource unit allocation subfield, the resource unit allocation subfield indicates a plurality of resource units, and the combination indication indicates combination information of the plurality of resource units.

[00224] The communications unit 420 is configured to send the PPDU.

[00225] Alternatively, the processing unit 410 is configured to determine a physical layer protocol data unit PPDU. The PPDU includes a signal field, the signal field includes a plurality of resource unit allocation subfields and a plurality of combination indications, the plurality of resource unit allocation subfields indicate a plurality of resource units, the plurality of combination indications indicate combination information of the plurality of resource units, one combination indication corresponds to an RU indicated by one resource unit allocation subfield, and one resource unit is a 242-tone RU, a 484-tone RU, or a 996-tone RU.

[00226] The communications unit 420 is configured to send the PPDU.

[00227] The communications apparatus provided in this application can be used to support one or more users in transmitting data by using a plurality of contiguous or discontinuous RUs, and indicate a combination status of the plurality of RUs to the user. This improves RU allocation flexibility of a system, and improves spectrum utilization of the system.

[00228] It should be understood that for a specific process of performing the foregoing corresponding steps by the units in the apparatus 400, refer to the foregoing description with reference to the method embodiments in FIG. 9 to FIG. 15. For brevity, details are not described herein again.

[00229] Optionally, the communications unit 420 may include a receiving unit (module) and a sending unit (module) that are configured to perform the step of sending information by the sending device in the foregoing methods. Optionally, the communications apparatus 400 may further include a storage unit 430. The storage unit 430 is configured to store instructions executed by the communications unit 420 and the processing unit 410. The communications unit 420, the processing unit 410, and the storage unit 430 are coupled to each other. The storage unit ~~330~~430 stores instructions. The processing unit 410 is configured to execute the instructions stored in the storage unit 430. The communications unit 420 is configured to send or receive a specific signal under driving of the processing unit 410.

[00230] The processing unit 410 may be a processor. The communications unit 420 may be a transceiver, an input/output interface, or an interface circuit. The storage unit 430 may be a memory. As shown in FIG. 17, a communications apparatus 500 may include a processor 510, a memory 520, and a transceiver 530. When the communications apparatus is a chip in a communications device, the storage unit may be a storage unit (for example, a register or a cache) in the chip, or may be a storage unit (for example, a read-only memory or a random access memory) outside the chip in the communications device.

[00231] It may be clearly understood by a person skilled in the art that, for steps performed by the communications apparatuses 400 and ~~400~~500 and corresponding beneficial effects, refer to related description of the sending device in the foregoing method embodiment. For brevity, details are not described herein again.

[00232] The communications apparatus 400 or ~~400~~500 may be a sending device. For example, the sending device may be an AP, a STA, or a network device.

[00233] FIG. 18 is a schematic block diagram of a communications apparatus 600 according to an embodiment of this application. The apparatus 600 may correspond to the receiving device described in the foregoing embodiments, or may be a chip or a component used in the receiving device. In addition, modules or units in the apparatus 600 are respectively configured to perform actions or processing processes performed by the receiving device in the foregoing method embodiment. As shown in FIG. 18, the communications apparatus 600 may include a communications unit 610 and a processing unit 620.

[00234] The communications unit 610 is configured to receive a physical layer protocol data unit PPDU. The PPDU includes a signal field, the signal field includes a resource unit allocation subfield and a combination indication corresponding to the resource unit allocation subfield, the resource unit allocation subfield indicates a plurality of resource units, and the combination indication indicates combination information of the plurality of resource units.

[00235] The processing unit 620 is configured to determine the combination information of the plurality of resource units based on the PPDU.

[00236] Alternatively, the communications unit 610 is configured to receive a physical layer protocol data unit PPDU. The PPDU includes a signal field, the signal field includes a plurality of resource unit allocation subfields and a plurality of combination indications, the plurality of resource unit allocation subfields indicate a plurality of resource units, the plurality of combination

indications indicate combination information of the plurality of resource units, one combination indication corresponds to an RU indicated by one resource unit allocation subfield, and one resource unit is a 242-tone RU, a 484-tone RU, or a 996-tone RU.

[00237] The processing unit 620 is configured to determine the combination information of the plurality of resource units based on the PPDU.

[00238] According to the communications apparatus provided in this application, the combination indication in the signal field may indicate a combination status of small-size RUs within a 20-MHz channel, to support one or more users in transmitting data by using a plurality of contiguous or discontinuous RUs. This improves RU allocation flexibility of a system, and improves spectrum utilization of the system.

[00239] It should be understood that for a specific process of performing the foregoing corresponding steps by the units in the apparatus 600, refer to the foregoing description of the receiving device in the foregoing embodiment. For brevity, details are not described herein again.

[00240] Optionally, the communications unit 610 may include a receiving unit (module) and a sending unit (module) that are configured to perform the step of receiving information by the receiving device in the method embodiment. Optionally, the communications apparatus 600 may further include a storage unit 630. The storage unit 630 is configured to store instructions executed by the communications unit 610 and the processing unit 620. The communications unit 610, the processing unit 620, and the storage unit 630 are coupled to each other. The storage unit 630 stores instructions. The processing unit 620 is configured to execute the instructions stored in the storage unit 630. The communications unit 610 is configured to send or receive a specific signal under driving of the processing unit 620.

[00241] It should be understood that the processing unit 620 may be implemented by a processor, and the communications unit 610 may be implemented by a transceiver. The storage unit 630 may be implemented by using a memory. As shown in FIG. 19, a communications apparatus 700 may include a processor 710, a memory 720, and a transceiver 730.

[00242] It may be clearly understood by a person skilled in the art that, for steps performed by the communications apparatuses 600 and 700 and corresponding beneficial effects, refer to related description of the receiving device in the foregoing embodiment. For brevity, details are not described herein again.

[00243] The communications apparatus 600 or 700 may be a receiving device, for example, a

The person skilled in the art may understand that, alternatively, the baseband processor and the central processing unit may be independent processors, and interconnected by using a technology such as a bus. A person skilled in the art may understand that the terminal device may include a plurality of baseband processors to adapt to different network standards, and the terminal device may include a plurality of central processing units to enhance processing capabilities of the terminal device, and components of the terminal device may be connected through various buses. The baseband processor may also be expressed as a baseband processing circuit or a baseband processing chip. The central processing unit may also be expressed as a central processing circuit or a central processing chip. A function of processing the communications protocol and the communications data may be embedded in the processor, or may be stored in a storage unit in a form of the software program. The processor executes the software program to implement a baseband processing function.

[00252] For example, in this embodiment of this application, the antenna and the control circuit that have receiving and sending functions may be considered as a transceiver unit 801 of the terminal device 800, and the processor having a processing function may be considered as a processing unit 802 of the terminal device 800. As shown in FIG. 10, the terminal device 800 includes the transceiver unit 801 and the processing unit 802. The transceiver unit may also be referred to as a transceiver, a transceiver machine, a transceiver apparatus, or the like. Optionally, a component configured to implement a receiving function in the transceiver unit 801 may be considered as a receiving unit, and a component configured to implement a sending function in the transceiver unit 801 may be considered as a sending unit. In other words, the transceiver unit 801 includes the receiving unit and the sending unit. For example, the receiving unit may also be referred to as a receiver machine, a receiver, a receiver circuit, or the like. The sending unit may be referred to as a transmitter machine, a transmitter, a transmitter circuit, or the like.

[00253] FIG. 21 is a schematic diagram of a structure of another terminal device 900 according to this application. In FIG. 21, the terminal device includes a processor 910, a data sending processor 920, and a data receiving processor 930. The processing unit 620 in the foregoing embodiment may be the processor 910 in FIG. 21, and implements a corresponding function. The communications unit 610 in the foregoing embodiment may be the data sending processor 920 and/or the data receiving processor 930 in FIG. 21. FIG. 21 shows a channel coder and a channel decoder. However, it may be understood that these modules do not constitute a limitation on this

of the chip and that is configured to receive a signal from another chip or apparatus. The foregoing unit configured for sending is an interface circuit of the apparatus, and is configured to send a signal to another apparatus. For example, when the apparatus is implemented in the manner of the chip, the sending unit is an interface circuit that is of the chip and that is configured to send a signal from another chip or apparatus.

[00266] An embodiment of this application further provides a communications system. The communications system includes the foregoing sending device and the foregoing receiving device.

[00267] An embodiment of this application further provides a computer-readable medium, configured to store computer program code. The computer program includes instructions used to perform the resource unit combination indication method in this embodiment of this application in the foregoing method embodiment. The readable medium may be a read-only memory (read-only memory, ROM) or a random access memory (random access memory, RAM). This is not limited in this embodiment of this application.

[00268] This application further provides a computer program product. The computer program product includes instructions. When the instructions are executed, a sending device and a receiving device are enabled to perform operations corresponding to the sending device and the receiving device in the foregoing method.

[00269] An embodiment of this application further provides a system chip. The system chip includes a processing unit and a communications unit. The processing unit may be, for example, a processor, and the communications unit may be, for example, an input/output interface, a pin, a circuit, or the like. The processing unit may execute computer instructions, so that the chip in the communications apparatus performs any resource unit combination indication method provided in the foregoing embodiment of this application.

[00270] Optionally, the computer instructions are stored in a storage unit.

[00271] Optionally, the storage unit is a storage unit in the chip, for example, a register or a cache. The storage unit may further be a storage unit, such as a ROM, another type of static storage device that can store static information and instructions, or a RAM, that is outside the chip and that is in the terminal. The processor mentioned in any of the foregoing descriptions may be a CPU, a microprocessor, an ASIC, or one or more integrated circuits for controlling program execution of the foregoing resource unit combination indication ~~feedback information~~ method. The processing unit and

the storage unit may be decoupled, are separately disposed on different physical devices, and are connected in a

CLAIMS

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What is claimed is:

1. A communications apparatus, comprising:

a processing unit, configured to determine a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of one multi-resource unit multi-RU on one 20-MHz channel or sizes and locations of a plurality of multi-RUs on one 20-MHz channel, the multi-RU comprises at least two resource units RUs, and the resource unit allocation subfield comprises 9 bits; and

a communications unit, configured to send the PPDU.

2. A communications apparatus, comprising:

a communications unit, configured to receive a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of one multi-resource unit multi-RU on one 20-MHz channel or sizes and locations of a plurality of multi-RUs on one 20-MHz channel, and the multi-RU comprises at least two resource units RUs; and

a processing unit, configured to determine the size and the location of the one multi-RU or the sizes and the locations of the plurality of multi-RUs based on the PPDU.

3. The apparatus according to claim 1 or 2, wherein a resource unit comprised in the multi-RU is less than a 242-tone RU, or a resource unit comprised in the multi-RU is greater than or equal to a 242-tone RU.

4. The apparatus according to any one of claims 1 to 3, wherein the one multi-RU comprises one 26-tone RU and one 52-tone RU; the one multi-RU comprises one 26-tone RU and one 106-tone RU; the one multi-RU comprises one 52-tone RU and one 106-tone RU; the one multi-RU comprises one 242-tone RU and another 242-tone RU; the one multi-RU comprises one 242-tone RU and one 484-tone RU; the one multi-RU comprises one 242-tone RU, one 484-tone RU, and one 996-tone RU; or the one multi-RU comprises three 996-tone RUs.

5. The apparatus according to any one of claims 1 to 3, wherein the plurality of multi-RUs are two multi-RUs, wherein in the two multi-RUs, one multi-RU comprises one 26-tone RU and one 52-tone RU, and the other multi-RU comprises one 26-tone RU and one 106-tone RU; or each of the two multi-RUs comprises one 26-tone RU and one 52-tone RU.

6. The apparatus according to any one of claims 1 to 3, wherein the plurality of multi-RUs are three multi-RUs, and each of the three multi-RUs comprises one 26-tone RU and one 52-tone RU.

7. The apparatus according to any one of claims 1 to 6, wherein at least two RUs comprised in the multi-RU are not neighboring to each other.

8. The apparatus according to any one of claims 1 to 6, wherein any two RUs comprised in the multi-RU are neighboring to each other.

9. The apparatus according to any one of claims 1 to 8, wherein the signal field comprises a combination indication, and the combination indication indicates the size and the location of the multi-resource unit multi-RU; and

the combination indication is comprised in the resource unit allocation subfield; or

the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the combination indication.

10. A resource combination indication method, comprising:

determining a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of one multi-resource unit multi-RU on one 20-MHz channel or sizes and locations of a plurality of multi-RUs on one 20-MHz channel, the multi-RU comprises at least two resource units RUs, and the resource unit allocation subfield comprises 9 bits; and

sending the PPDU.

11. A resource combination indication method, comprising:

receiving a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of one multi-resource unit multi-RU on one 20-MHz channel or sizes and locations of a plurality of multi-RUs on one 20-MHz channel, and the multi-RU comprises at least two resource units RUs; and

determining the size and the location of the one multi-RU or the sizes and the locations of the plurality of multi-RUs based on the PPDU.

12. The method according to claim 10 or 11, wherein a resource unit comprised in the multi-RU is less than a 242-tone RU, or a resource unit comprised in the multi-RU is greater than or equal to a 242-tone RU.

13. The method according to any one of claims 10 to 12, wherein the one multi-RU comprises one 26-tone RU and one 52-tone RU; the one multi-RU comprises one 26-tone RU

and one 106-tone RU; the one multi-RU comprises one 52-tone RU and one 106-tone RU; the one multi-RU comprises one 242-tone RU and another 242-tone RU; the one multi-RU comprises one 242-tone RU and one 484-tone RU; the one multi-RU comprises one 242-tone RU, one 484-tone RU, and one 996-tone RU; or the one multi-RU comprises three 996-tone RUs.

14. The method according to any one of claims 10 to 12, wherein the plurality of multi-RUs are two multi-RUs, wherein in the two multi-RUs, one multi-RU comprises one 26-tone RU and one 52-tone RU, and the other multi-RU comprises one 26-tone RU and one 106-tone RU; or each of the two multi-RUs comprises one 26-tone RU and one 52-tone RU.

15. The method according to any one of claims 10 to 12, wherein the plurality of multi-RUs are three multi-RUs, and each of the three multi-RUs comprises one 26-tone RU and one 52-tone RU.

16. The method according to any one of claims 10 to 15, wherein at least two RUs comprised in the multi-RU are not neighboring to each other.

17. The method according to any one of claims 10 to 15, wherein any two RUs comprised in the multi-RU are neighboring to each other.

18. The method according to any one of claims 10 to 17, wherein the signal field comprises a combination indication, and the combination indication indicates the size and the location of the multi-RU; and

the combination indication is comprised in the resource unit allocation subfield; or

the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the combination indication.

19. A communications apparatus, comprising:

a processing unit, configured to determine a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a resource unit allocation subfield and a combination indication corresponding to the resource unit allocation subfield, the resource unit allocation subfield indicates a plurality of resource units, and the combination indication indicates combination information of the plurality of resource units; and

a communications unit, configured to send the PPDU.

20. A communications apparatus, comprising:

a communications unit, configured to receive a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a resource unit allocation subfield and a combination indication corresponding to the resource unit allocation

subfield, the resource unit allocation subfield indicates a plurality of resource units, and the combination indication indicates combination information of the plurality of resource units; and

a processing unit, configured to determine the combination information of the plurality of resource units based on the PPDU.

21. The apparatus according to claim 19 or 20, wherein the combination indication is comprised in the resource unit allocation subfield; or the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the combination indication.

22. The apparatus according to any one of claims 19 to 21, wherein the combination indication comprises 2 bits, the combination indication indicates a quantity of multi-resource units multi-RUs obtained by combining the plurality of resource units, and one multi-RU is formed by combining at least two resource units in the plurality of resource units.

23. The apparatus according to claim 22, wherein when the quantity of the multi-RU is one, the multi-RU is formed by combining one 26-tone RU and one 52-tone RU, by combining one 26-tone RU and one 106-tone RU, or by combining one 52-tone RU and one 106-tone RU;

when the quantity of the multi-RUs is two, in the two multi-RUs, one multi-RU is formed by combining one 26-tone RU and one 52-tone RU, and the other multi-RU is formed by combining one 26-tone RU and one 106-tone RU; or each of the two multi-RUs is formed by combining one 26-tone RU and one 52-tone RU; or

when the quantity of the multi-RUs is three, each of the three multi-RUs is formed by combining one 26-tone RU and one 52-tone RU.

24. The apparatus according to any one of claims 19 to 21, wherein the combination indication comprises 1 bit, a first value of the combination indication indicates that the plurality of resource units are not combined, and a second value of the combination indication indicates that at least two RUs in the plurality of resource units are combined into a multi-resource unit multi-RU.

25. The apparatus according to claim 24, wherein the multi-RU is formed by combining a 56-tone RU and a neighboring 26-tone RU; the multi-RU is formed by combining a 106-tone RU and a neighboring 26-tone RU; or the multi-RU is formed by combining a 106-tone RU and a 52-tone RU.

26. The apparatus according to any one of claims 19 to 21, wherein a first value of the combination indication indicates that the plurality of resource units are not combined; a

second value of the combination indication indicates that a first 52-tone RU or a first 106-tone RU in the plurality of resource units is combined with a neighboring 26-tone RU; a third value of the combination indication indicates that a second 106-tone RU in the plurality of resource units is combined with a neighboring 26-tone RU; and a fourth value of the combination indication indicates that a third 52-tone RU in the plurality of resource units is combined with a neighboring 26-tone RU.

27. A communications apparatus, comprising:

a processing unit, configured to determine a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a plurality of resource unit allocation subfields and a plurality of combination indications, the plurality of resource unit allocation subfields indicate a plurality of resource units, the plurality of combination indications indicate combination information of the plurality of resource units, one combination indication corresponds to an RU indicated by one resource unit allocation subfield, and one resource unit is a 242-tone RU, a 484-tone RU, or a 996-tone RU; and

a communications unit, configured to send the PPDU.

28. A communications apparatus, comprising:

a communications unit, configured to receive a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a plurality of resource unit allocation subfields and a plurality of combination indications, the plurality of resource unit allocation subfields indicate a plurality of resource units, the plurality of combination indications indicate combination information of the plurality of resource units, one combination indication corresponds to an RU indicated by one resource unit allocation subfield, and one resource unit is a 242-tone RU, a 484-tone RU, or a 996-tone RU; and

a processing unit, configured to determine the combination information of the plurality of resource units based on the PPDU.

29. The apparatus according to claim 27 or 28, wherein

the combination indication is comprised in the corresponding resource unit allocation subfield; or

the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the plurality of combination indications.

30. The apparatus according to any one of claims 27 to 29, wherein

a first value of the combination indication indicates that an RU corresponding to the combination indication is not combined; and

at least two RUs corresponding to at least two combination indications, in the plurality

of combination indications, whose values are all a second value are combined.

31. The apparatus according to any one of claims 27 to 29, wherein

a first value of the combination indication indicates that an RU corresponding to the combination indication is not combined;

a second value of the combination indication indicates that an RU corresponding to the combination indication and another RU are combined into a multi-RU, and the RU is an initial RU in the multi-RU;

a third value of the combination indication indicates that an RU corresponding to the combination indication and another RU are combined into a multi-RU, and the RU is a center RU in the multi-RU; and

a fourth value of the combination indication indicates that an RU corresponding to the combination indication and another RU are combined into a multi-RU, and the RU is a tail RU in the multi-RU.

32. The apparatus according to any one of claims 27 to 29, wherein

a first value of the combination indication indicates that an RU corresponding to the combination indication is not combined; and

a second value of the combination indication indicates that an RU corresponding to the combination indication and another RU at a preset location are combined into a multi-RU.

33. A resource unit combination indication method, comprising:

determining a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a resource unit allocation subfield and a combination indication corresponding to the resource unit allocation subfield, the resource unit allocation subfield indicates a plurality of resource units, and the combination indication indicates combination information of the plurality of resource units; and

sending the PPDU.

34. A resource unit combination indication method, comprising:

receiving a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a resource unit allocation subfield and a combination indication corresponding to the resource unit allocation subfield, the resource unit allocation subfield indicates a plurality of resource units, and the combination indication indicates combination information of the plurality of resource units; and

determining the combination information of the plurality of resource units based on the PPDU.

35. The method according to claim 33 or 34, wherein

the combination indication is comprised in the resource unit allocation subfield; or
the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the combination indication.

36. The method according to any one of claims 33 to 35, wherein the combination indication comprises 2 bits, the combination indication indicates a quantity of multi-RUs obtained by combining the plurality of resource units, and one multi-RU is formed by combining at least two resource units in the plurality of resource units.

37. The method according to claim 36, wherein

when the quantity of the multi-RU is one, the multi-RU is formed by combining one 26-tone RU and one 52-tone RU, by combining one 26-tone RU and one 106-tone RU, or by combining one 52-tone RU and one 106-tone RU;

when the quantity of the multi-RUs is two, in the two multi-RUs, one multi-RU is formed by combining one 26-tone RU and one 52-tone RU, and the other multi-RU is formed by combining one 26-tone RU and one 106-tone RU; or each of the two multi-RUs is formed by combining one 26-tone RU and one 52-tone RU; or

when the quantity of the multi-RUs is three, each of the three multi-RUs is formed by combining one 26-tone RU and one 52-tone RU.

38. The method according to any one of claims 33 to 35, wherein the combination indication comprises 1 bit, a first value of the combination indication indicates that the plurality of resource units are not combined, and a second value of the combination indication indicates that at least two RUs in the plurality of resource units are combined into a multi-RU.

39. The method according to claim 38, wherein the multi-RU is formed by combining a 56-tone RU and a neighboring 26-tone RU; the multi-RU is formed by combining a 106-tone RU and a neighboring 26-tone RU; or the multi-RU is formed by combining a 106-tone RU and a 52-tone RU.

40. The method according to any one of claims 33 to 35, wherein a first value of the combination indication indicates that the plurality of resource units are not combined; a second value of the combination indication indicates that a first 52-tone RU or a first 106-tone RU in the plurality of resource units is combined with a neighboring 26-tone RU; a third value of the combination indication indicates that a second 106-tone RU in the plurality of resource units is combined with a neighboring 26-tone RU; and a fourth value of the combination indication indicates that a third 52-tone RU in the plurality of resource units is combined with a neighboring 26-tone RU.

41. A resource unit combination indication method, comprising:

determining a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a plurality of resource unit allocation subfields and a plurality of combination indications, the plurality of resource unit allocation subfields indicate a plurality of resource units, the plurality of combination indications indicate combination information of the plurality of resource units, one combination indication corresponds to an RU indicated by one resource unit allocation subfield, and one resource unit is a 242-tone RU, a 484-tone RU, or a 996-tone RU; and

sending the PPDU.

42. A resource unit combination indication method, comprising:

receiving a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises a plurality of resource unit allocation subfields and a plurality of combination indications, the plurality of resource unit allocation subfields indicate a plurality of resource units, the plurality of combination indications indicate combination information of the plurality of resource units, one combination indication corresponds to an RU indicated by one resource unit allocation subfield, and one resource unit is a 242-tone RU, a 484-tone RU, or a 996-tone RU; and

determining the combination information of the plurality of resource units based on the PPDU.

43. The method according to claim 41 or 42, wherein

the combination indication is comprised in the corresponding resource unit allocation subfield; or

the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the plurality of combination indications.

44. The method according to any one of claims 41 to 43, wherein

a first value of the combination indication indicates that an RU corresponding to the combination indication is not combined; and

at least two RUs corresponding to at least two combination indications, in the plurality of combination indications, whose values are all a second value are combined.

45. The method according to any one of claims 41 to 43, wherein

a first value of the combination indication indicates that an RU corresponding to the combination indication is not combined;

a second value of the combination indication indicates that an RU corresponding to the combination indication and another RU are combined into a multi-RU, and the RU is an

initial RU in the multi-RU;

a third value of the combination indication indicates that an RU corresponding to the combination indication and another RU are combined into a multi-RU, and the RU is a center RU in the multi-RU; and

a fourth value of the combination indication indicates that an RU corresponding to the combination indication and another RU are combined into a multi-RU, and the RU is a tail RU in the multi-RU.

46. The method according to any one of claims 41 to 43, wherein

a first value of the combination indication indicates that an RU corresponding to the combination indication is not combined; and

a second value of the combination indication indicates that an RU corresponding to the combination indication and another RU at a preset location are combined into a multi-RU.

47. A communications apparatus, comprising at least one processor and an interface circuit, wherein the at least one processor is configured to perform the method according to any one of claims 10 to 18, the method according to any one of claims 33 to 40, or the method according to any one of claims 41 to 46.

48. A communications apparatus, comprising at least one processor and a memory, wherein the memory is configured to store a computer program and data, and the at least one processor is configured to perform the method according to any one of claims 10 to 18, the method according to any one of claims 33 to 40, or the method according to any one of claims 41 to 46.

49. A computer-readable storage medium, wherein the computer-readable storage medium stores a program, and when the program is run by a processor, the method according to any one of claims 10 to 18 or the method according to any one of 33 to 46 is performed.

50. A computer program product, wherein the computer program product comprises instructions, and when the instructions are executed, the method according to any one of claims 10 to 18, the method according to any one of claims 33 to 40, or the method according to any one of claims 41 to 46 is performed.

51. A communications system, wherein the communications system comprises the apparatus according to claim 1 or any one of claims 3 to 9, and the apparatus according to any one of claims 2 to 9;

the communications system comprises the apparatus according to claim 19 or any one of claims 21 to 26, and the apparatus according to any one of claims 20 to 26; or

the communications system comprises the apparatus according to claim 27 or claims any

one of 29 to 32, and the apparatus according to claims any one of 28 to 32.

CLAIMS

What is claimed is:

1. A communications apparatus, comprising:

a processing unit, configured to determine a physical layer protocol data unit (PPDU), wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of a multi-resource unit (multi-RU), the multi-RU comprises at least two resource units (RUs), and the resource unit allocation subfield comprises 9 bits; and

a communications unit, configured to send the PPDU.

2. A communications apparatus, comprising:

a communications unit, configured to receive a physical layer protocol data unit (PPDU), wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of a multi-resource unit (multi-RU), and the multi-RU comprises at least two resource units (RUs); and

a processing unit, configured to determine the size and the location of the multi-RU corresponding to the apparatus based on the PPDU.3. The apparatus according to claim 1 or 2, wherein the multi-RU occupies at least a 20-MHz channel corresponding to the resource unit allocation subfield.

4. The apparatus according to any one of claims 1 to 3, wherein a resource unit comprised in the multi-RU is less than a 242-tone RU, or a resource unit comprised in the multi-RU is greater than or equal to a 242-tone RU.

5. The apparatus according to any one of claims 1 to 4, wherein the multi-RU comprises one multi-RU, wherein the one multi-RU comprises one 26-tone RU and one 52-tone RU; the one multi-RU comprises one 26-tone RU and one 106-tone RU; the one multi-RU comprises one 52-tone RU and one 106-tone RU; the one multi-RU comprises one 242-tone RU and another 242-tone RU; the one multi-RU comprises one 242-tone RU and one 484-tone RU; the one multi-RU comprises one 242-tone RU, one 484-tone RU, and one 996-tone RU; the one multi-RU comprises three 996-tone RUs; or the one multi-RU comprises one 484-tone RU and one 996-tone RU.

6. The apparatus according to any one of claims 1 to 5, wherein the multi-RU comprises one multi-RU, wherein the one multi-RU is located in the 20-MHz channel, wherein the 20-MHz

channel comprises eight resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 52-tone RU, a seventh RU is a 26-tone RU, an eighth RU is a 26-tone RU, and the one multi-RU comprises the sixth RU and the seventh RU;

5 the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, and the one multi-RU comprises the fifth RU and the sixth RU;

10 the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, and the one multi-RU comprises the fifth RU and the sixth RU;

15 the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 52-tone RU, a third RU is a 26-tone RU, a fourth RU is a 52-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, and the one multi-RU comprises the fourth RU and the fifth RU;

20 the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, and the one multi-RU comprises the third RU and the fourth RU;

25 the 20-MHz channel comprises eight resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, an eighth RU is a 26-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 52-tone RU, and the one multi-RU comprises the second RU and the third RU;

30 the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU,

a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 52-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 106-tone RU, and the one multi-RU comprises the fifth RU and the sixth RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, and the one multi-RU comprises the fourth RU and the fifth RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, and the one multi-RU comprises the fourth RU and the fifth RU;

the 20-MHz channel comprises four resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 52-tone RU, a third RU is a 26-tone RU, a fourth RU is a 106-tone RU, and the one multi-RU comprises the third RU and the fourth RU;

the 20-MHz channel comprises three resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 106-tone RU, a third RU is a 26-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, and the one multi-

RU comprises the first RU and the second RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises four resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 52-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises three resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 106-tone RU, and the one multi-RU comprises the first RU and the second RU; or

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 52-tone RU, a third RU is a 26-tone RU, a fourth RU is a 52-tone RU, a fifth RU is a 52-tone RU, and the one multi-RU comprises the second RU and the third RU.

7. The apparatus according to any one of claims 1 to 4, wherein the multi-RU comprises two multi-RUs, wherein in the two multi-RUs, one multi-RU comprises one 26-tone RU and one 52-tone RU, and the other multi-RU comprises one 26-tone RU and one 106-tone RU; or each of the two multi-RUs comprises one 26-tone RU and one 52-tone RU.

8. The apparatus according to any one of claims 1 to 4, or claim 7, wherein the multi-RU comprises two multi-RUs, and the two multi-RUs are located in the 20-MHz channel, wherein the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, one of the two multi-RUs comprises the first RU and the second RU, and the other one of the two multi-RUs comprises the third RU and the fourth RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies,

a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, one of the two multi-RUs comprises the second RU and the third RU, and the other one of the two multi-RUs comprises the fourth RU and the fifth RU; or

5 the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, one of the two multi-RUs comprises the second RU and the third RU, and the other one of the two multi-RUs comprises the fifth RU and the sixth RU.

10 9. The apparatus according to any one of claims 1 to 4, wherein the multi-RU comprises three multi-RUs, and each of the three multi-RUs comprises one 26-tone RU and one 52-tone RU.

10. The apparatus according to any one of claims 1 to 9, wherein the signal field further comprises at least one user field, a sequence of the at least one user field corresponds to a sequence of an allocation of resource units indicated by the one or more resource unit allocation subfields.

15 11. The apparatus according to any one of claims 1 to 10, wherein at least two RUs comprised in the multi-RU are not neighboring to each other.

12. The apparatus according to any one of claims 1 to 10, wherein any two RUs comprised in the multi-RU are neighboring to each other.

13. The apparatus according to any one of claims 1 to 12, wherein the signal field comprises a combination indication, and the combination indication indicates the size and the location of the multi-RU; and

the combination indication is comprised in the resource unit allocation subfield; or

the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the combination indication.

25 14. A resource unit combination indication method, comprising:

determining a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of a multi-resource unit multi-RU, the multi-RU comprises at least two resource units RUs, and the resource unit allocation subfield comprises

30 9 bits; and

sending the PPDU.

15. A resource unit combination indication method, comprising:

receiving a physical layer protocol data unit PPDU, wherein the PPDU comprises a signal field, the signal field comprises one or more resource unit allocation subfields, the one resource unit allocation subfield indicates a size and a location of a multi-resource unit multi-RU, and the multi-RU comprises at least two resource units RUs; and

determining the size and the location of the multi-RU corresponding to the apparatus based on the PPDU.

16. The apparatus according to claim 14 or 15, wherein the signal field further comprises at least one user field, a sequence of the at least one user field corresponds to a sequence of an allocation of resource units indicated by the one or more resource unit allocation subfields.

17. The method according to any one of claims 14 to 16, wherein the multi-RU occupies at least a 20-MHz channel corresponding to the resource unit allocation subfield.

18. The method according to any one of claims 14 to 17, wherein a resource unit comprised in the multi-RU is less than a 242-tone RU, or a resource unit comprised in the multi-RU is greater than or equal to a 242-tone RU.

19. The method according to any one of claims 14 to 18, wherein the multi-RU comprises one multi-RU, wherein the one multi-RU comprises one 26-tone RU and one 52-tone RU; the one multi-RU comprises one 26-tone RU and one 106-tone RU; the one multi-RU comprises one 52-tone RU and one 106-tone RU; the one multi-RU comprises one 242-tone RU and another 242-tone RU; the one multi-RU comprises one 242-tone RU and one 484-tone RU; the one multi-RU comprises one 242-tone RU, one 484-tone RU, and one 996-tone RU; the one multi-RU comprises three 996-tone RUs; or the one multi-RU comprises one 484-tone RU and one 996-tone RU.

20. The method according to any one of 14 to 19, wherein the multi-RU comprises one multi-RU, wherein the one multi-RU is located in the 20-MHz channel, wherein the 20-MHz channel comprises eight resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 52-tone RU, a seventh RU is a 26-tone RU, an eighth RU is a 26-tone RU, and the one multi-RU comprises the sixth RU and the seventh RU;

the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh

RU is a 26-tone RU, and the one multi-RU comprises the fifth RU and the sixth RU;

the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh
5 RU is a 26-tone RU, and the one multi-RU comprises the fifth RU and the sixth RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 52-tone RU, a third RU is a 26-tone RU, a fourth RU is a 52-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, and the one multi-RU comprises the fourth RU and the fifth RU;

10 the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, and the one multi-RU comprises the third RU and the fourth RU;

the 20-MHz channel comprises eight resource units RUs, and in ascending order of
15 frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, an eighth RU is a 26-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises seven resource units RUs, and in ascending order of
20 frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 52-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises seven resource units RUs, and in ascending order of
25 frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh RU is a 26-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 52-tone RU, and the one multi-RU
30 comprises the second RU and the third RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies,

a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 106-tone RU, and the one multi-RU comprises the fifth RU and the sixth RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, and the one multi-RU comprises the fourth RU and the fifth RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, and the one multi-RU comprises the fourth RU and the fifth RU;

the 20-MHz channel comprises four resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 52-tone RU, a third RU is a 26-tone RU, a fourth RU is a 106-tone RU, and the one multi-RU comprises the third RU and the fourth RU;

the 20-MHz channel comprises three resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 106-tone RU, a third RU is a 26-tone RU, and the one multi-RU comprises the second RU and the third RU;

the 20-MHz channel comprises six resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, a sixth RU is a 26-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 26-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth

RU is a 26-tone RU, a fifth RU is a 26-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises four resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 52-tone RU, and the one multi-RU comprises the first RU and the second RU;

the 20-MHz channel comprises three resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 106-tone RU, and the one multi-RU comprises the first RU and the second RU; or

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 52-tone RU, a second RU is a 52-tone RU, a third RU is a 26-tone RU, a fourth RU is a 52-tone RU, a fifth RU is a 52-tone RU, and the one multi-RU comprises the second RU and the third RU.

21. The method according to any one of claims 14 to 18, wherein the multi-RU comprises two multi-RUs, wherein in the two multi-RUs, one multi-RU comprises one 26-tone RU and one 52-tone RU, and the other multi-RU comprises one 26-tone RU and one 106-tone RU; or each of the two multi-RUs comprises one 26-tone RU and one 52-tone RU.

22. The method according to any one of claims 14 to 18, or claim 19, wherein the multi-RU comprises two multi-RUs, and the two multi-RUs are located in the 20-MHz channel, wherein the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 106-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 26-tone RU, one of the two multi-RUs comprises the first RU and the second RU, and the other one of the two multi-RUs comprises the third RU and the fourth RU;

the 20-MHz channel comprises five resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 106-tone RU, one of the two multi-RUs comprises the second RU and the third RU, and the other one of the two multi-RUs comprises the fourth RU and the fifth RU; or

the 20-MHz channel comprises seven resource units RUs, and in ascending order of frequencies, a first RU is a 26-tone RU, a second RU is a 26-tone RU, a third RU is a 52-tone RU, a fourth RU is a 26-tone RU, a fifth RU is a 52-tone RU, a sixth RU is a 26-tone RU, a seventh

RU is a 26-tone RU, one of the two multi-RUs comprises the second RU and the third RU, and the other one of the two multi-RUs comprises the fifth RU and the sixth RU.

23. The method according to any one of claims 14 to 18, wherein the multi-RU comprises three multi-RUs, and each of the three multi-RUs comprises one 26-tone RU and one 52-tone RU.

24. The method according to any one of claims 14 to 23, wherein at least two RUs comprised in the multi-RU are not neighboring to each other.

25. The method according to any one of claims 14 to 23, wherein any two RUs comprised in the multi-RU are neighboring to each other.

26. The method according to any one of claims 14 to 25, wherein the signal field comprises a combination indication, and the combination indication indicates the size and the location of the multi-RU; and

the combination indication is comprised in the resource unit allocation subfield; or

the signal field further comprises a multi-resource unit allocation field, and the multi-resource unit allocation field comprises the combination indication.

27. A communications apparatus, comprising at least one processor and an interface circuit, wherein the at least one processor is configured to perform the method according to any one of claims 14 to 26.

28. A communications apparatus, comprising at least one processor and a memory, wherein the memory is configured to store a computer program and data, and the at least one processor is configured to perform the method according to any one of claims 14 to 26.

29. A computer-readable storage medium, wherein the computer-readable storage medium stores a program, and when the program is run by a processor, the method according to any one of claims 14 to 26 is performed.

30. A computer program product, wherein the computer program product comprises instructions, and when the instructions are executed, the method according to any one of claims 14 to 26 is performed.

31. A communications system, wherein the communications system comprises the apparatus according to claim 1 or any one of claims 3 to 13, and the apparatus according to any one of claims 2 to 13.