(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
02 May 2024 (02.05.2024)

WIPO | PCT

(10) International Publication Number
WO 2024/091758 A1

(51) International Patent Classification:
H04L 5/00 (2006.01) *H04L 5/14* (2006.01)

(21) International Application Number:
PCT/US2023/075215

(22) International Filing Date:
27 September 2023 (27.09.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
18/050,842 28 October 2022 (28.10.2022) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) Title: BANDWIDTH PART CONFIGURATIONS FOR MIXED HALF DUPLEX AND SUBBAND FULL DUPLEX COMMUNICATIONS

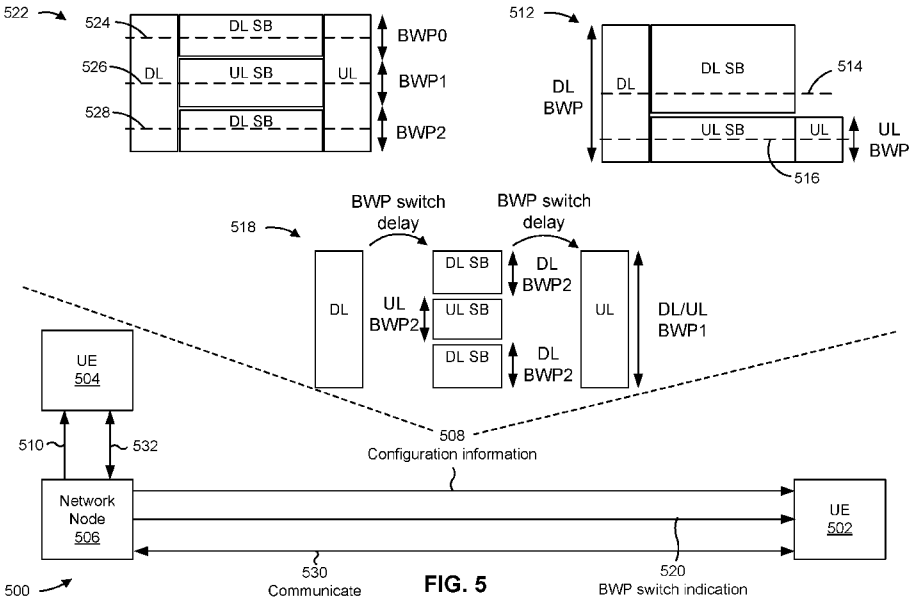

FIG. 5

(57) Abstract: Various aspects of the present disclosure generally relate to wireless communication. In some aspects, a user equipment (UE) may receive configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP. The UE may communicate based on the configuration information. Numerous other aspects are described.

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WO 2024/091758 A1

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

— *with international search report (Art. 21(3))*

BANDWIDTH PART CONFIGURATIONS FOR MIXED HALF DUPLEX AND SUBBAND FULL DUPLEX COMMUNICATIONS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This Patent Application claims priority to U.S. Patent Application No. 18/050,842, filed on October 28, 2022, entitled "BANDWIDTH PART CONFIGURATIONS FOR MIXED HALF DUPLEX AND SUBBAND FULL DUPLEX COMMUNICATIONS," and assigned to the assignee hereof. The disclosure of the prior Application is considered part of and is incorporated by reference into this Patent Application.

FIELD OF THE DISCLOSURE

[0002] Aspects of the present disclosure generally relate to wireless communication and to techniques and apparatuses for bandwidth part configurations for mixed half duplex and subband full duplex communications.

BACKGROUND

[0003] Wireless communication systems are widely deployed to provide various telecommunication services such as telephony, video, data, messaging, and broadcasts. Typical wireless communication systems may employ multiple-access technologies capable of supporting communication with multiple users by sharing available system resources (e.g., bandwidth, transmit power, or the like). Examples of such multiple-access technologies include code division multiple access (CDMA) systems, time division multiple access (TDMA) systems, frequency division multiple access (FDMA) systems, orthogonal frequency division multiple access (OFDMA) systems, single-carrier frequency division multiple access (SC-FDMA) systems, time division synchronous code division multiple access (TD-SCDMA) systems, and Long Term Evolution (LTE). LTE/LTE-Advanced is a set of enhancements to the Universal Mobile Telecommunications System (UMTS) mobile standard promulgated by the Third Generation Partnership Project (3GPP).

[0004] A wireless network may include one or more network nodes that support communication for wireless communication devices, such as a user equipment (UE) or multiple UEs. A UE may communicate with a network node via downlink communications and uplink communications. "Downlink" (or "DL") refers to a communication link from the network node to the UE, and "uplink" (or "UL") refers to a communication link from the UE to the network node. Some wireless networks may support device-to-device communication, such as via a local link (e.g., a sidelink (SL), a wireless local area network (WLAN) link, and/or a wireless personal area network (WPAN) link, among other examples).

[0005] The above multiple access technologies have been adopted in various telecommunication standards to provide a common protocol that enables different UEs to communicate on a municipal, national, regional, and/or global level. New Radio (NR), which may be referred to as 5G, is a set of enhancements to the LTE mobile standard promulgated by the 3GPP. NR is designed to better support mobile broadband internet access by improving spectral efficiency, lowering costs, improving services, making use of new spectrum, and better integrating with other open standards using orthogonal frequency division multiplexing (OFDM) with a cyclic prefix (CP) (CP-OFDM) on the downlink, using CP-OFDM and/or single-carrier frequency division multiplexing (SC-FDM) (also known as discrete Fourier transform spread OFDM (DFT-s-OFDM)) on the uplink, as well as supporting beamforming, multiple-input multiple-output (MIMO) antenna technology, and carrier aggregation. As the demand for mobile broadband access continues to increase, further improvements in LTE, NR, and other radio access technologies remain useful.

SUMMARY

[0006] Some aspects described herein relate to a user equipment (UE) for wireless communication. The UE may include a memory and one or more processors coupled to the memory. The one or more processors may be configured to receive configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP. The one or more processors may be configured to communicate based on the configuration information.

[0007] Some aspects described herein relate to a network node for wireless communication. The network node may include a memory and one or more processors coupled to the memory. The one or more processors may be configured to transmit configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The one or more processors may be configured to communicate based on the configuration information.

[0008] Some aspects described herein relate to a method of wireless communication performed by an apparatus at a UE. The method may include receiving configuration information indicative of an SBFD configuration for communicating, based on an HD

configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The method may include communicating based on the configuration information.

[0009] Some aspects described herein relate to a method of wireless communication performed by an apparatus at a network node. The method may include transmitting configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The method may include communicating based on the configuration information.

[0010] Some aspects described herein relate to a non-transitory computer-readable medium that stores a set of instructions for wireless communication by a UE. The set of instructions, when executed by one or more processors of the UE, may cause the UE to receive configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The set of instructions, when executed by one or more processors of the UE, may cause the UE to communicate based on the configuration information.

[0011] Some aspects described herein relate to a non-transitory computer-readable medium that stores a set of instructions for wireless communication by a network node. The set of instructions, when executed by one or more processors of the network node, may cause the network node to transmit configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The set of instructions, when executed by one or more processors of the network node, may cause the network node to communicate based on the configuration information.

[0012] Some aspects described herein relate to an apparatus for wireless communication. The apparatus may include means for receiving configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to

one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The apparatus may include means for communicating based on the configuration information.

[0013] Some aspects described herein relate to an apparatus for wireless communication. The apparatus may include means for transmitting configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP. The apparatus may include means for communicating based on the configuration information.

[0014] Aspects generally include a method, apparatus, system, computer program product, non-transitory computer-readable medium, user equipment, base station, network entity, network node, wireless communication device, and/or processing system as substantially described herein with reference to and as illustrated by the drawings and specification.

[0015] The foregoing has outlined rather broadly the features and technical advantages of examples according to the disclosure in order that the detailed description that follows may be better understood. Additional features and advantages will be described hereinafter. The conception and specific examples disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present disclosure. Such equivalent constructions do not depart from the scope of the appended claims. Characteristics of the concepts disclosed herein, both their organization and method of operation, together with associated advantages, will be better understood from the following description when considered in connection with the accompanying figures. Each of the figures is provided for the purposes of illustration and description, and not as a definition of the limits of the claims.

[0016] While aspects are described in the present disclosure by illustration to some examples, those skilled in the art will understand that such aspects may be implemented in many different arrangements and scenarios. Techniques described herein may be implemented using different platform types, devices, systems, shapes, sizes, and/or packaging arrangements. For example, some aspects may be implemented via integrated chip embodiments or other non-module-component based devices (e.g., end-user devices, vehicles, communication devices, computing devices, industrial equipment, retail/purchasing devices, medical devices, and/or artificial intelligence devices). Aspects may be implemented in chip-level components, modular components, non-modular components, non-chip-level components, device-level components, and/or system-level components. Devices incorporating described aspects and features may include additional components and features for implementation and practice of claimed and

described aspects. For example, transmission and reception of wireless signals may include one or more components for analog and digital purposes (e.g., hardware components including antennas, radio frequency (RF) chains, power amplifiers, modulators, buffers, processors, interleavers, adders, and/or summers). It is intended that aspects described herein may be practiced in a wide variety of devices, components, systems, distributed arrangements, and/or end-user devices of varying size, shape, and constitution.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] So that the above-recited features of the present disclosure can be understood in detail, a more particular description, briefly summarized above, may be had by reference to aspects, some of which are illustrated in the appended drawings. It is to be noted, however, that the appended drawings illustrate only certain typical aspects of this disclosure and are therefore not to be considered limiting of its scope, for the description may admit to other equally effective aspects. The same reference numbers in different drawings may identify the same or similar elements.

[0018] Fig. 1 is a diagram illustrating an example of a wireless network, in accordance with the present disclosure.

[0019] Fig. 2 is a diagram illustrating an example of a network node in communication with a user equipment in a wireless network, in accordance with the present disclosure.

[0020] Fig. 3 is a diagram illustrating an example disaggregated base station architecture, in accordance with the present disclosure.

[0021] Fig. 4 is a diagram illustrating an example of full duplex communication, in accordance with the present disclosure.

[0022] Fig. 5 is a diagram illustrating an example associated with bandwidth part configurations for mixed half duplex/subband full duplex communications, in accordance with the present disclosure.

[0023] Fig. 6 is a diagram illustrating an example process performed, for example, by a UE, in accordance with the present disclosure.

[0024] Fig. 7 is a diagram illustrating an example process performed, for example, by a network node, in accordance with the present disclosure.

[0025] Fig. 8 is a diagram of an example apparatus for wireless communication, in accordance with the present disclosure.

[0026] Fig. 9 is a diagram of an example apparatus for wireless communication, in accordance with the present disclosure.

DETAILED DESCRIPTION

[0027] Various aspects of the disclosure are described more fully hereinafter with reference to the accompanying drawings. This disclosure may, however, be embodied in many different forms and should not be construed as limited to any specific structure or function presented throughout this disclosure. Rather, these aspects are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the disclosure to those skilled in the art. One skilled in the art should appreciate that the scope of the disclosure is intended to cover any aspect of the disclosure disclosed herein, whether implemented independently of or combined with any other aspect of the disclosure. For example, an apparatus may be implemented or a method may be practiced using any number of the aspects set forth herein. In addition, the scope of the disclosure is intended to cover such an apparatus or method which is practiced using other structure, functionality, or structure and functionality in addition to or other than the various aspects of the disclosure set forth herein. It should be understood that any aspect of the disclosure disclosed herein may be embodied by one or more elements of a claim.

[0028] Aspects and examples generally include a method, apparatus, network node, system, computer program product, non-transitory computer-readable medium, user equipment, base station, wireless communication device, and/or processing system as described or substantially described herein with reference to and as illustrated by the drawings and specification.

[0029] This disclosure may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present disclosure. Such equivalent constructions do not depart from the scope of the appended claims. Characteristics of the concepts disclosed herein, both their organization and method of operation, together with associated advantages, are better understood from the following description when considered in connection with the accompanying figures. Each of the figures is provided for the purposes of illustration and description, and not as a definition of the limits of the claims.

[0030] While aspects are described in the present disclosure by illustration to some examples, such aspects may be implemented in many different arrangements and scenarios. Techniques described herein may be implemented using different platform types, devices, systems, shapes, sizes, and/or packaging arrangements. For example, some aspects may be implemented via integrated chip embodiments or other non-module-component-based devices (e.g., end-user devices, vehicles, communication devices, computing devices, industrial equipment, retail/purchasing devices, medical devices, and/or artificial intelligence devices). Aspects may be implemented in chip-level components, modular components, non-modular components, non-chip-level components, device-level components, and/or system-level components. Devices incorporating described aspects and features may include additional components and features for implementation and practice of claimed and described aspects. For example, transmission and reception of wireless signals may include one or more components for analog

and digital purposes (e.g., hardware components including antennas, radio frequency (RF) chains, power amplifiers, modulators, buffers, processors, interleavers, adders, and/or summers). Aspects described herein may be practiced in a wide variety of devices, components, systems, distributed arrangements, and/or end-user devices of varying size, shape, and constitution.

[0031] Several aspects of telecommunication systems will now be presented with reference to various apparatuses and techniques. These apparatuses and techniques will be described in the following detailed description and illustrated in the accompanying drawings by various blocks, modules, components, circuits, steps, processes, algorithms, or the like (collectively referred to as "elements"). These elements may be implemented using hardware, software, or combinations thereof. Whether such elements are implemented as hardware or software depends upon the particular application and design constraints imposed on the overall system.

[0032] While aspects may be described herein using terminology commonly associated with a 5G or New Radio (NR) radio access technology (RAT), aspects of the present disclosure can be applied to other RATs, such as a 3G RAT, a 4G RAT, and/or a RAT subsequent to 5G (e.g., 6G).

[0033] Fig. 1 is a diagram illustrating an example of a wireless network 100, in accordance with the present disclosure. The wireless network 100 may be or may include elements of a 5G (e.g., NR) network and/or a 4G (e.g., Long Term Evolution (LTE)) network, among other examples. The wireless network 100 may include one or more network nodes 110 (shown as a network node 110a, a network node 110b, a network node 110c, and a network node 110d), a user equipment (UE) 120 or multiple UEs 120 (shown as a UE 120a, a UE 120b, a UE 120c, a UE 120d, and a UE 120e), and/or other entities. A network node 110 is a network node that communicates with UEs 120. As shown, a network node 110 may include one or more network nodes. For example, a network node 110 may be an aggregated network node, meaning that the aggregated network node is configured to utilize a radio protocol stack that is physically or logically integrated within a single radio access network (RAN) node (e.g., within a single device or unit). As another example, a network node 110 may be a disaggregated network node (sometimes referred to as a disaggregated base station), meaning that the network node 110 is configured to utilize a protocol stack that is physically or logically distributed among two or more nodes (such as one or more central units (CUs), one or more distributed units (DUs), or one or more radio units (RUs)).

[0034] In some examples, a network node 110 is or includes a network node that communicates with UEs 120 via a radio access link, such as an RU. In some examples, a network node 110 is or includes a network node that communicates with other network nodes 110 via a fronthaul link or a midhaul link, such as a DU. In some examples, a network node 110 is or includes a network node that communicates with other network nodes 110 via a

midhaul link or a core network via a backhaul link, such as a CU. In some examples, a network node 110 (such as an aggregated network node 110 or a disaggregated network node 110) may include multiple network nodes, such as one or more RUs, one or more CUs, and/or one or more DUs. A network node 110 may include, for example, an NR base station, an LTE base station, a Node B, an eNB (e.g., in 4G), a gNB (e.g., in 5G), an access point, a transmission reception point (TRP), a DU, an RU, a CU, a mobility element of a network, a core network node, a network element, a network equipment, a RAN node, or a combination thereof. In some examples, the network nodes 110 may be interconnected to one another or to one or more other network nodes 110 in the wireless network 100 through various types of fronthaul, midhaul, and/or backhaul interfaces, such as a direct physical connection, an air interface, or a virtual network, using any suitable transport network.

[0035] In some examples, a network node 110 may provide communication coverage for a particular geographic area. In the Third Generation Partnership Project (3GPP), the term "cell" can refer to a coverage area of a network node 110 and/or a network node subsystem serving this coverage area, depending on the context in which the term is used. A network node 110 may provide communication coverage for a macro cell, a pico cell, a femto cell, and/or another type of cell. A macro cell may cover a relatively large geographic area (e.g., several kilometers in radius) and may allow unrestricted access by UEs 120 with service subscriptions. A pico cell may cover a relatively small geographic area and may allow unrestricted access by UEs 120 with service subscriptions. A femto cell may cover a relatively small geographic area (e.g., a home) and may allow restricted access by UEs 120 having association with the femto cell (e.g., UEs 120 in a closed subscriber group (CSG)). A network node 110 for a macro cell may be referred to as a macro network node. A network node 110 for a pico cell may be referred to as a pico network node. A network node 110 for a femto cell may be referred to as a femto network node or an in-home network node. In the example shown in Fig. 1, the network node 110a may be a macro network node for a macro cell 102a, the network node 110b may be a pico network node for a pico cell 102b, and the network node 110c may be a femto network node for a femto cell 102c. A network node may support one or multiple (e.g., three) cells. In some examples, a cell may not necessarily be stationary, and the geographic area of the cell may move according to the location of a network node 110 that is mobile (e.g., a mobile network node).

[0036] In some aspects, the terms "base station" or "network node" may refer to an aggregated base station, a disaggregated base station, an integrated access and backhaul (IAB) node, a relay node, or one or more components thereof. For example, in some aspects, "base station" or "network node" may refer to a CU, a DU, an RU, a Near-Real Time (Near-RT) RAN Intelligent Controller (RIC), or a Non-Real Time (Non-RT) RIC, or a combination thereof. In some aspects, the terms "base station" or "network node" may refer to one device configured to perform one or more functions, such as those described herein in connection with the network

node 110. In some aspects, the terms "base station" or "network node" may refer to a plurality of devices configured to perform the one or more functions. For example, in some distributed systems, each of a quantity of different devices (which may be located in the same geographic location or in different geographic locations) may be configured to perform at least a portion of a function, or to duplicate performance of at least a portion of the function, and the terms "base station" or "network node" may refer to any one or more of those different devices. In some aspects, the terms "base station" or "network node" may refer to one or more virtual base stations or one or more virtual base station functions. For example, in some aspects, two or more base station functions may be instantiated on a single device. In some aspects, the terms "base station" or "network node" may refer to one of the base station functions and not another. In this way, a single device may include more than one base station.

[0037] The wireless network 100 may include one or more relay stations. A relay station is a network node that can receive a transmission of data from an upstream node (e.g., a network node 110 or a UE 120) and send a transmission of the data to a downstream node (e.g., a UE 120 or a network node 110). A relay station may be a UE 120 that can relay transmissions for other UEs 120. In the example shown in Fig. 1, the network node 110d (e.g., a relay network node) may communicate with the network node 110a (e.g., a macro network node) and the UE 120d in order to facilitate communication between the network node 110a and the UE 120d. A network node 110 that relays communications may be referred to as a relay station, a relay base station, a relay network node, a relay node, a relay, or the like.

[0038] The wireless network 100 may be a heterogeneous network that includes network nodes 110 of different types, such as macro network nodes, pico network nodes, femto network nodes, relay network nodes, or the like. These different types of network nodes 110 may have different transmit power levels, different coverage areas, and/or different impacts on interference in the wireless network 100. For example, macro network nodes may have a high transmit power level (e.g., 5 to 40 watts) whereas pico network nodes, femto network nodes, and relay network nodes may have lower transmit power levels (e.g., 0.1 to 2 watts).

[0039] A network controller 130 may couple to or communicate with a set of network nodes 110 and may provide coordination and control for these network nodes 110. The network controller 130 may communicate with the network nodes 110 via a backhaul communication link or a midhaul communication link. The network nodes 110 may communicate with one another directly or indirectly via a wireless or wireline backhaul communication link. In some aspects, the network controller 130 may be a CU or a core network device, or may include a CU or a core network device.

[0040] The UEs 120 may be dispersed throughout the wireless network 100, and each UE 120 may be stationary or mobile. A UE 120 may include, for example, an access terminal, a terminal, a mobile station, and/or a subscriber unit. A UE 120 may be a cellular phone (e.g., a

smart phone), a personal digital assistant (PDA), a wireless modem, a wireless communication device, a handheld device, a laptop computer, a cordless phone, a wireless local loop (WLL) station, a tablet, a camera, a gaming device, a netbook, a smartbook, a ULtrabook, a medical device, a biometric device, a wearable device (e.g., a smart watch, smart clothing, smart glasses, a smart wristband, smart jewelry (e.g., a smart ring or a smart bracelet)), an entertainment device (e.g., a music device, a video device, and/or a satellite radio), a vehicular component or sensor, a smart meter/sensor, industrial manufacturing equipment, a global positioning system device, a UE function of a network node, and/or any other suitable device that is configured to communicate via a wireless or wired medium.

[0041] Some UEs 120 may be considered machine-type communication (MTC) or evolved or enhanced machine-type communication (eMTC) UEs. An MTC UE and/or an eMTC UE may include, for example, a robot, a drone, a remote device, a sensor, a meter, a monitor, and/or a location tag, that may communicate with a network node, another device (e.g., a remote device), or some other entity. Some UEs 120 may be considered Internet-of-Things (IoT) devices, and/or may be implemented as NB-IoT (narrowband IoT) devices. Some UEs 120 may be considered a Customer Premises Equipment. A UE 120 may be included inside a housing that houses components of the UE 120, such as processor components and/or memory components. In some examples, the processor components and the memory components may be coupled together. For example, the processor components (e.g., one or more processors) and the memory components (e.g., a memory) may be operatively coupled, communicatively coupled, electronically coupled, and/or electrically coupled.

[0042] In general, any number of wireless networks 100 may be deployed in a given geographic area. Each wireless network 100 may support a particular RAT and may operate on one or more frequencies. A RAT may be referred to as a radio technology, an air interface, or the like. A frequency may be referred to as a carrier, a frequency channel, or the like. Each frequency may support a single RAT in a given geographic area in order to avoid interference between wireless networks of different RATs. In some cases, NR or 5G RAT networks may be deployed.

[0043] In some examples, two or more UEs 120 (e.g., shown as UE 120a and UE 120e) may communicate directly using one or more sidelink channels (e.g., without using a network node 110 as an intermediary to communicate with one another). For example, the UEs 120 may communicate using peer-to-peer (P2P) communications, device-to-device (D2D) communications, a vehicle-to-everything (V2X) protocol (e.g., which may include a vehicle-to-vehicle (V2V) protocol, a vehicle-to-infrastructure (V2I) protocol, or a vehicle-to-pedestrian (V2P) protocol), and/or a mesh network. In such examples, a UE 120 may perform scheduling operations, resource selection operations, and/or other operations described elsewhere herein as being performed by the network node 110.

[0044] Devices of the wireless network 100 may communicate using the electromagnetic spectrum, which may be subdivided by frequency or wavelength into various classes, bands, channels, or the like. For example, devices of the wireless network 100 may communicate using one or more operating bands. In 5G NR, two initial operating bands have been identified as frequency range designations FR1 (410 MHz – 7.125 GHz) and FR2 (24.25 GHz – 52.6 GHz). It should be understood that although a portion of FR1 is greater than 6 GHz, FR1 is often referred to (interchangeably) as a "Sub-6 GHz" band in various documents and articles. A similar nomenclature issue sometimes occurs with regard to FR2, which is often referred to (interchangeably) as a "millimeter wave" band in documents and articles, despite being different from the extremely high frequency (EHF) band (30 GHz – 300 GHz) which is identified by the International Telecommunications Union (ITU) as a "millimeter wave" band.

[0045] The frequencies between FR1 and FR2 are often referred to as mid-band frequencies. Recent 5G NR studies have identified an operating band for these mid-band frequencies as frequency range designation FR3 (7.125 GHz – 24.25 GHz). Frequency bands falling within FR3 may inherit FR1 characteristics and/or FR2 characteristics, and thus may effectively extend features of FR1 and/or FR2 into mid-band frequencies. In addition, higher frequency bands are currently being explored to extend 5G NR operation beyond 52.6 GHz. For example, three higher operating bands have been identified as frequency range designations FR4a or FR4-1 (52.6 GHz – 71 GHz), FR4 (52.6 GHz – 114.25 GHz), and FR5 (114.25 GHz – 300 GHz). Each of these higher frequency bands falls within the EHF band.

[0046] With the above examples in mind, unless specifically stated otherwise, it should be understood that the term "sub-6 GHz" or the like, if used herein, may broadly represent frequencies that may be less than 6 GHz, may be within FR1, or may include mid-band frequencies. Further, unless specifically stated otherwise, it should be understood that the term "millimeter wave" or the like, if used herein, may broadly represent frequencies that may include mid-band frequencies, may be within FR2, FR4, FR4-a or FR4-1, and/or FR5, or may be within the EHF band. It is contemplated that the frequencies included in these operating bands (e.g., FR1, FR2, FR3, FR4, FR4-a, FR4-1, and/or FR5) may be modified, and techniques described herein are applicable to those modified frequency ranges.

[0047] In some aspects, the UE 120 may include a communication manager 140. As described in more detail elsewhere herein, the communication manager 140 may receive configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and communicate

based on the configuration information. Additionally, or alternatively, the communication manager 140 may perform one or more other operations described herein.

[0048] In some aspects, the network node 110 may include a communication manager 150. As described in more detail elsewhere herein, the communication manager 150 may transmit configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP; and communicate based on the configuration information. Additionally, or alternatively, the communication manager 150 may perform one or more other operations described herein.

[0049] As indicated above, Fig. 1 is provided as an example. Other examples may differ from what is described with regard to Fig. 1.

[0050] Fig. 2 is a diagram illustrating an example 200 of a network node 110 in communication with a UE 120 in a wireless network 100, in accordance with the present disclosure. The network node 110 may be equipped with a set of antennas 234a through 234t, such as T antennas ($T \geq 1$). The UE 120 may be equipped with a set of antennas 252a through 252r, such as R antennas ($R \geq 1$). The network node 110 of example 200 includes one or more radio frequency components, such as antennas 234 and a modem 254. In some examples, a network node 110 may include an interface, a communication component, or another component that facilitates communication with the UE 120 or another network node. Some network nodes 110 may not include radio frequency components that facilitate direct communication with the UE 120, such as one or more CUs, or one or more DUs.

[0051] At the network node 110, a transmit processor 220 may receive data, from a data source 212, intended for the UE 120 (or a set of UEs 120). The transmit processor 220 may select one or more modulation and coding schemes (MCSs) for the UE 120 based at least in part on one or more channel quality indicators (CQIs) received from that UE 120. The network node 110 may process (e.g., encode and modulate) the data for the UE 120 based at least in part on the MCS(s) selected for the UE 120 and may provide data symbols for the UE 120. The transmit processor 220 may process system information (e.g., for semi-static resource partitioning information (SRPI)) and control information (e.g., CQI requests, grants, and/or upper layer signaling) and provide overhead symbols and control symbols. The transmit processor 220 may generate reference symbols for reference signals (e.g., a cell-specific reference signal (CRS) or a demodulation reference signal (DMRS)) and synchronization signals (e.g., a primary synchronization signal (PSS) or a secondary synchronization signal (SSS)). A transmit (TX) multiple-input multiple-output (MIMO) processor 230 may perform spatial processing (e.g., precoding) on the data symbols, the control symbols, the overhead

symbols, and/or the reference symbols, if applicable, and may provide a set of output symbol streams (e.g., T output symbol streams) to a corresponding set of modems 232 (e.g., T modems), shown as modems 232a through 232t. For example, each output symbol stream may be provided to a modulator component (shown as MOD) of a modem 232. Each modem 232 may use a respective modulator component to process a respective output symbol stream (e.g., for OFDM) to obtain an output sample stream. Each modem 232 may further use a respective modulator component to process (e.g., convert to analog, amplify, filter, and/or upconvert) the output sample stream to obtain a downlink signal. The modems 232a through 232t may transmit a set of downlink signals (e.g., T downlink signals) via a corresponding set of antennas 234 (e.g., T antennas), shown as antennas 234a through 234t.

[0052] At the UE 120, a set of antennas 252 (shown as antennas 252a through 252r) may receive the downlink signals from the network node 110 and/or other network nodes 110 and may provide a set of received signals (e.g., R received signals) to a set of modems 254 (e.g., R modems), shown as modems 254a through 254r. For example, each received signal may be provided to a demodulator component (shown as DEMOD) of a modem 254. Each modem 254 may use a respective demodulator component to condition (e.g., filter, amplify, downconvert, and/or digitize) a received signal to obtain input samples. Each modem 254 may use a demodulator component to further process the input samples (e.g., for OFDM) to obtain received symbols. A MIMO detector 256 may obtain received symbols from the modems 254, may perform MIMO detection on the received symbols if applicable, and may provide detected symbols. A receive processor 258 may process (e.g., demodulate and decode) the detected symbols, may provide decoded data for the UE 120 to a data sink 260, and may provide decoded control information and system information to a controller/processor 280. The term "controller/processor" may refer to one or more controllers, one or more processors, or a combination thereof. A channel processor may determine a reference signal received power (RSRP) parameter, a received signal strength indicator (RSSI) parameter, a reference signal received quality (RSRQ) parameter, and/or a CQI parameter, among other examples. In some examples, one or more components of the UE 120 may be included in a housing 284.

[0053] The network controller 130 may include a communication unit 294, a controller/processor 290, and a memory 292. The network controller 130 may include, for example, one or more devices in a core network. The network controller 130 may communicate with the network node 110 via the communication unit 294.

[0054] One or more antennas (e.g., antennas 234a through 234t and/or antennas 252a through 252r) may include, or may be included within, one or more antenna panels, one or more antenna groups, one or more sets of antenna elements, and/or one or more antenna arrays, among other examples. An antenna panel, an antenna group, a set of antenna elements, and/or an antenna array may include one or more antenna elements (within a single housing or multiple housings),

a set of coplanar antenna elements, a set of non-coplanar antenna elements, and/or one or more antenna elements coupled to one or more transmission and/or reception components, such as one or more components of Fig. 2.

[0055] Each of the antenna elements may include one or more sub-elements for radiating or receiving radio frequency signals. For example, a single antenna element may include a first sub-element cross-polarized with a second sub-element that can be used to independently transmit cross-polarized signals. The antenna elements may include patch antennas, dipole antennas, or other types of antennas arranged in a linear pattern, a two-dimensional pattern, or another pattern. A spacing between antenna elements may be such that signals with a desired wavelength transmitted separately by the antenna elements may interact or interfere (e.g., to form a desired beam). For example, given an expected range of wavelengths or frequencies, the spacing may provide a quarter wavelength, half wavelength, or other fraction of a wavelength of spacing between neighboring antenna elements to allow for interaction or interference of signals transmitted by the separate antenna elements within that expected range.

[0056] Antenna elements and/or sub-elements may be used to generate beams. "Beam" may refer to a directional transmission such as a wireless signal that is transmitted in a direction of a receiving device. A beam may include a directional signal, a direction associated with a signal, a set of directional resources associated with a signal (e.g., angle of arrival, horizontal direction, vertical direction), and/or a set of parameters that indicate one or more aspects of a directional signal, a direction associated with a signal, and/or a set of directional resources associated with a signal.

[0057] As indicated above, antenna elements and/or sub-elements may be used to generate beams. For example, antenna elements may be individually selected or deselected for transmission of a signal (or signals) by controlling an amplitude of one or more corresponding amplifiers. Beamforming includes generation of a beam using multiple signals on different antenna elements, where one or more, or all, of the multiple signals are shifted in phase relative to each other. The formed beam may carry physical or higher layer reference signals or information. As each signal of the multiple signals is radiated from a respective antenna element, the radiated signals interact, interfere (constructive and destructive interference), and amplify each other to form a resulting beam. The shape (such as the amplitude, width, and/or presence of side lobes) and the direction (such as an angle of the beam relative to a surface of an antenna array) can be dynamically controlled by modifying the phase shifts or phase offsets of the multiple signals relative to each other.

[0058] Beamforming may be used for communications between a UE and a network node, such as for millimeter wave communications and/or the like. In such a case, the network node may provide the UE with a configuration of transmission configuration indicator (TCI) states that respectively indicate beams that may be used by the UE, such as for receiving a physical

downlink shared channel (PDSCH). A TCI state indicates a spatial parameter for a communication. For example, a TCI state for a communication may identify a source signal (such as a synchronization signal block, a channel state information reference signal, or the like) and a spatial parameter to be derived from the source signal for the purpose of transmitting or receiving the communication. For example, the TCI state may indicate a quasi-co-location (QCL) type. A QCL type may indicate one or more spatial parameters to be derived from the source signal. The source signal may be referred to as a QCL source. The network node may indicate an activated TCI state to the UE, which the UE may use to select a beam for receiving the PDSCH.

[0059] A beam indication may be, or include, a TCI state information element, a beam identifier (ID), spatial relation information, a TCI state ID, a closed loop index, a panel ID, a TRP ID, and/or a sounding reference signal (SRS) set ID, among other examples. A TCI state information element (referred to as a TCI state herein) may indicate information associated with a beam such as a downlink beam. For example, the TCI state information element may indicate a TCI state identification (e.g., a *tci-StateID*), a QCL type (e.g., a *qcl-Type1*, *qcl-Type2*, *qcl-TypeA*, *qcl-TypeB*, *qcl-TypeC*, *qcl-TypeD*, and/or the like), a cell identification (e.g., a *ServCellIndex*), a bandwidth part identification (*bwp-Id*), a reference signal identification such as a CSI-RS (e.g., an *NZP-CSI-RS-ResourceId*, an *SSB-Index*, and/or the like), and/or the like. Spatial relation information may similarly indicate information associated with an uplink beam.

[0060] The beam indication may be a joint or separate downlink (DL)/uplink (UL) beam indication in a unified TCI framework. In some cases, the network may support layer 1 (L1)-based beam indication using at least UE-specific (unicast) downlink control information (DCI) to indicate joint or separate DL/UL beam indications from active TCI states. In some cases, existing DCI formats 1_1 and/or 1_2 may be reused for beam indication. The network may include a support mechanism for a UE to acknowledge successful decoding of a beam indication. For example, the acknowledgment/negative acknowledgment (ACK/NACK) of the PDSCH scheduled by the DCI carrying the beam indication may be also used as an ACK for the DCI.

[0061] Beam indications may be provided for carrier aggregation (CA) scenarios. In a unified TCI framework, information the network may support common TCI state ID update and activation to provide common QCL and/or common UL transmission spatial filter or filters across a set of configured component carriers (CCs). This type of beam indication may apply to intra-band CA, as well as to joint DL/UL and separate DL/UL beam indications. The common TCI state ID may imply that one reference signal (RS) determined according to the TCI state(s) indicated by a common TCI state ID is used to provide QCL Type-D indication and to determine UL transmission spatial filters across the set of configured CCs.

[0062] On the uplink, at the UE 120, a transmit processor 264 may receive and process data from a data source 262 and control information (e.g., for reports that include RSRP, RSSI, RSRQ, and/or CQI) from the controller/processor 280. The transmit processor 264 may generate reference symbols for one or more reference signals. The symbols from the transmit processor 264 may be precoded by a TX MIMO processor 266 if applicable, further processed by the modems 254 (e.g., for DFT-s-OFDM or CP-OFDM), and transmitted to the network node 110. In some examples, the modem 254 of the UE 120 may include a modulator and a demodulator. In some examples, the UE 120 includes a transceiver. The transceiver may include any combination of the antenna(s) 252, the modem(s) 254, the MIMO detector 256, the receive processor 258, the transmit processor 264, and/or the TX MIMO processor 266. The transceiver may be used by a processor (e.g., the controller/processor 280) and the memory 282 to perform aspects of any of the methods described herein (e.g., with reference to Figs. 5-9).

[0063] At the network node 110, the uplink signals from UE 120 and/or other UEs may be received by the antennas 234, processed by the modem 232 (e.g., a demodulator component, shown as DEMOD, of the modem 232), detected by a MIMO detector 236 if applicable, and further processed by a receive processor 238 to obtain decoded data and control information sent by the UE 120. The receive processor 238 may provide the decoded data to a data sink 239 and provide the decoded control information to the controller/processor 240. The network node 110 may include a communication unit 244 and may communicate with the network controller 130 via the communication unit 244. The network node 110 may include a scheduler 246 to schedule one or more UEs 120 for downlink and/or uplink communications. In some examples, the modem 232 of the network node 110 may include a modulator and a demodulator. In some examples, the network node 110 includes a transceiver. The transceiver may include any combination of the antenna(s) 234, the modem(s) 232, the MIMO detector 236, the receive processor 238, the transmit processor 220, and/or the TX MIMO processor 230. The transceiver may be used by a processor (e.g., the controller/processor 240) and the memory 242 to perform aspects of any of the methods described herein (e.g., with reference to Figs. 5-9).

[0064] In some aspects, the controller/processor 280 may be a component of a processing system. A processing system may generally be a system or a series of machines or components that receives inputs and processes the inputs to produce a set of outputs (which may be passed to other systems or components of, for example, the UE 120). For example, a processing system of the UE 120 may be a system that includes the various other components or subcomponents of the UE 120.

[0065] The processing system of the UE 120 may interface with one or more other components of the UE 120, may process information received from one or more other components (such as inputs or signals), or may output information to one or more other components. For example, a chip or modem of the UE 120 may include a processing system, a

first interface to receive or obtain information, and a second interface to output, transmit, or provide information. In some examples, the first interface may be an interface between the processing system of the chip or modem and a receiver, such that the UE 120 may receive information or signal inputs, and the information may be passed to the processing system. In some examples, the second interface may be an interface between the processing system of the chip or modem and a transmitter, such that the UE 120 may transmit information output from the chip or modem. A person having ordinary skill in the art will readily recognize that the second interface also may obtain or receive information or signal inputs, and the first interface also may output, transmit, or provide information.

[0066] In some aspects, the controller/processor 240 may be a component of a processing system. A processing system may generally be a system or a series of machines or components that receives inputs and processes the inputs to produce a set of outputs (which may be passed to other systems or components of, for example, the network node 110). For example, a processing system of the network node 110 may be a system that includes the various other components or subcomponents of the network node 110.

[0067] The processing system of the network node 110 may interface with one or more other components of the network node 110, may process information received from one or more other components (such as inputs or signals), or may output information to one or more other components. For example, a chip or modem of the network node 110 may include a processing system, a first interface to receive or obtain information, and a second interface to output, transmit, or provide information. In some examples, the first interface may be an interface between the processing system of the chip or modem and a receiver, such that the network node 110 may receive information or signal inputs, and the information may be passed to the processing system. In some examples, the second interface may be an interface between the processing system of the chip or modem and a transmitter, such that the network node 110 may transmit information output from the chip or modem. A person having ordinary skill in the art will readily recognize that the second interface also may obtain or receive information or signal inputs, and the first interface also may output, transmit, or provide information.

[0068] The controller/processor 240 of the network node 110, the controller/processor 280 of the UE 120, and/or any other component(s) of Fig. 2 may perform one or more techniques associated with BWP configurations for mixed HD/SBFD communications, as described in more detail elsewhere herein. For example, the controller/processor 240 of the network node 110, the controller/processor 280 of the UE 120, and/or any other component(s) of Fig. 2 may perform or direct operations of, for example, process 600 of Fig. 6, process 700 of Fig. 7, and/or other processes as described herein. The memory 242 and the memory 282 may store data and program codes for the network node 110 and the UE 120, respectively. In some examples, the memory 242 and/or the memory 282 may include a non-transitory computer-readable medium

storing one or more instructions (e.g., code and/or program code) for wireless communication. For example, the one or more instructions, when executed (e.g., directly, or after compiling, converting, and/or interpreting) by one or more processors of the network node 110 and/or the UE 120, may cause the one or more processors, the UE 120, and/or the network node 110 to perform or direct operations of, for example, process 600 of Fig. 6, process 700 of Fig. 7, and/or other processes as described herein. In some examples, executing instructions may include running the instructions, converting the instructions, compiling the instructions, and/or interpreting the instructions, among other examples.

[0069] In some aspects, a UE (e.g., the UE 120) includes means for receiving configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP; and/or means for communicating based on the configuration information. The means for the UE to perform operations described herein may include, for example, one or more of communication manager 140, antenna 252, modem 254, MIMO detector 256, receive processor 258, transmit processor 264, TX MIMO processor 266, controller/processor 280, or memory 282.

[0070] In some aspects, a network node (e.g., the network node 110) includes means for transmitting configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP; and/or means for communicating based on the configuration information. The means for the network node to perform operations described herein may include, for example, one or more of communication manager 150, transmit processor 220, TX MIMO processor 230, modem 232, antenna 234, MIMO detector 236, receive processor 238, controller/processor 240, memory 242, or scheduler 246.

[0071] While blocks in Fig. 2 are illustrated as distinct components, the functions described above with respect to the blocks may be implemented in a single hardware, software, or combination component or in various combinations of components. For example, the functions described with respect to the transmit processor 264, the receive processor 258, and/or the TX MIMO processor 266 may be performed by or under the control of the controller/processor 280.

[0072] As indicated above, Fig. 2 is provided as an example. Other examples may differ from what is described with regard to Fig. 2.

[0073] Deployment of communication systems, such as 5G NR systems, may be arranged in multiple manners with various components or constituent parts. In a 5G NR system, or network, a network node, a network entity, a mobility element of a network, a RAN node, a core network node, a network element, a base station, or a network equipment may be implemented in an aggregated or disaggregated architecture. For example, a base station (such as a Node B (NB), an evolved NB (eNB), an NR BS, a 5G NB, an access point (AP), a TRP, or a cell, among other examples), or one or more units (or one or more components) performing base station functionality, may be implemented as an aggregated base station (also known as a standalone base station or a monolithic base station) or a disaggregated base station. "Network entity" or "network node" may refer to a disaggregated base station, or to one or more units of a disaggregated base station (such as one or more CUs, one or more DUs, one or more RUs, or a combination thereof).

[0074] An aggregated base station (e.g., an aggregated network node) may be configured to utilize a radio protocol stack that is physically or logically integrated within a single RAN node (e.g., within a single device or unit). A disaggregated base station (e.g., a disaggregated network node) may be configured to utilize a protocol stack that is physically or logically distributed among two or more units (such as one or more CUs, one or more DUs, or one or more RUs). In some examples, a CU may be implemented within a network node, and one or more DUs may be co-located with the CU, or alternatively, may be geographically or virtually distributed throughout one or multiple other network nodes. The DUs may be implemented to communicate with one or more RUs. Each of the CU, DU, and RU also can be implemented as virtual units, such as a virtual central unit (VCU), a virtual distributed unit (VDU), or a virtual radio unit (VRU), among other examples.

[0075] Base station-type operation or network design may consider aggregation characteristics of base station functionality. For example, disaggregated base stations may be utilized in an IAB network, an open radio access network (O-RAN (such as the network configuration sponsored by the O-RAN Alliance)), or a virtualized radio access network (vRAN, also known as a cloud radio access network (C-RAN)) to facilitate scaling of communication systems by separating base station functionality into one or more units that can be individually deployed. A disaggregated base station may include functionality implemented across two or more units at various physical locations, as well as functionality implemented for at least one unit virtually, which can enable flexibility in network design. The various units of the disaggregated base station can be configured for wired or wireless communication with at least one other unit of the disaggregated base station.

[0076] Fig. 3 is a diagram illustrating an example disaggregated base station architecture 300, in accordance with the present disclosure. The disaggregated base station architecture 300 may include a CU 310 that can communicate directly with a core network 320 via a backhaul

link, or indirectly with the core network 320 through one or more disaggregated control units (such as a Near-RT RIC 325 via an E2 link, or a Non-RT RIC 315 associated with a Service Management and Orchestration (SMO) Framework 305, or both). A CU 310 may communicate with one or more DUs 330 via respective midhaul links, such as through F1 interfaces. Each of the DUs 330 may communicate with one or more RUs 340 via respective fronthaul links. Each of the RUs 340 may communicate with one or more UEs 120 via respective radio frequency (RF) access links. In some implementations, a UE 120 may be simultaneously served by multiple RUs 340.

[0077] Each of the units, including the CUs 310, the DUs 330, the RUs 340, as well as the Near-RT RICs 325, the Non-RT RICs 315, and the SMO Framework 305, may include one or more interfaces or be coupled with one or more interfaces configured to receive or transmit signals, data, or information (collectively, signals) via a wired or wireless transmission medium. Each of the units, or an associated processor or controller providing instructions to one or multiple communication interfaces of the respective unit, can be configured to communicate with one or more of the other units via the transmission medium. In some examples, each of the units can include a wired interface, configured to receive or transmit signals over a wired transmission medium to one or more of the other units, and a wireless interface, which may include a receiver, a transmitter or transceiver (such as an RF transceiver), configured to receive or transmit signals, or both, over a wireless transmission medium to one or more of the other units.

[0078] In some aspects, the CU 310 may host one or more higher layer control functions. Such control functions can include radio resource control (RRC) functions, packet data convergence protocol (PDCP) functions, or service data adaptation protocol (SDAP) functions, among other examples. Each control function can be implemented with an interface configured to communicate signals with other control functions hosted by the CU 310. The CU 310 may be configured to handle user plane functionality (for example, Central Unit – User Plane (CU-UP) functionality), control plane functionality (for example, Central Unit – Control Plane (CU-CP) functionality), or a combination thereof. In some implementations, the CU 310 can be logically split into one or more CU-UP units and one or more CU-CP units. A CU-UP unit can communicate bidirectionally with a CU-CP unit via an interface, such as the E1 interface when implemented in an O-RAN configuration. The CU 310 can be implemented to communicate with a DU 330, as necessary, for network control and signaling.

[0079] Each DU 330 may correspond to a logical unit that includes one or more base station functions to control the operation of one or more RUs 340. In some aspects, the DU 330 may host one or more of a radio link control (RLC) layer, a MAC layer, and one or more high physical (PHY) layers depending, at least in part, on a functional split, such as a functional split defined by the 3GPP. In some aspects, the one or more high PHY layers may be implemented

by one or more modules for forward error correction (FEC) encoding and decoding, scrambling, and modulation and demodulation, among other examples. In some aspects, the DU 330 may further host one or more low PHY layers, such as implemented by one or more modules for a fast Fourier transform (FFT), an inverse FFT (iFFT), digital beamforming, or physical random access channel (PRACH) extraction and filtering, among other examples. Each layer (which also may be referred to as a module) can be implemented with an interface configured to communicate signals with other layers (and modules) hosted by the DU 330, or with the control functions hosted by the CU 310.

[0080] Each RU 340 may implement lower-layer functionality. In some deployments, an RU 340, controlled by a DU 330, may correspond to a logical node that hosts RF processing functions or low-PHY layer functions, such as performing an FFT, performing an iFFT, digital beamforming, or PRACH extraction and filtering, among other examples, based on a functional split (for example, a functional split defined by the 3GPP), such as a lower layer functional split. In such an architecture, each RU 340 can be operated to handle over the air (OTA) communication with one or more UEs 120. In some implementations, real-time and non-real-time aspects of control and user plane communication with the RU(s) 340 can be controlled by the corresponding DU 330. In some scenarios, this configuration can enable each DU 330 and the CU 310 to be implemented in a cloud-based RAN architecture, such as a vRAN architecture.

[0081] The SMO Framework 305 may be configured to support RAN deployment and provisioning of non-virtualized and virtualized network elements. For non-virtualized network elements, the SMO Framework 305 may be configured to support the deployment of dedicated physical resources for RAN coverage requirements, which may be managed via an operations and maintenance interface (such as an O1 interface). For virtualized network elements, the SMO Framework 305 may be configured to interact with a cloud computing platform (such as an open cloud (O-Cloud) platform 390) to perform network element life cycle management (such as to instantiate virtualized network elements) via a cloud computing platform interface (such as an O2 interface). Such virtualized network elements can include, but are not limited to, CUs 310, DUs 330, RUs 340, non-RT RICs 315, and Near-RT RICs 325. In some implementations, the SMO Framework 305 can communicate with a hardware aspect of a 4G RAN, such as an open eNB (O-eNB) 311, via an O1 interface. Additionally, in some implementations, the SMO Framework 305 can communicate directly with each of one or more RUs 340 via a respective O1 interface. The SMO Framework 305 also may include a Non-RT RIC 315 configured to support functionality of the SMO Framework 305.

[0082] The Non-RT RIC 315 may be configured to include a logical function that enables non-real-time control and optimization of RAN elements and resources, Artificial Intelligence/Machine Learning (AI/ML) workflows including model training and updates, or policy-based guidance of applications/features in the Near-RT RIC 325. The Non-RT RIC 315

may be coupled to or communicate with (such as via an A1 interface) the Near-RT RIC 325. The Near-RT RIC 325 may be configured to include a logical function that enables near-real-time control and optimization of RAN elements and resources via data collection and actions over an interface (such as via an E2 interface) connecting one or more CUs 310, one or more DUs 330, or both, as well as an O-eNB, with the Near-RT RIC 325.

[0083] In some implementations, to generate AI/ML models to be deployed in the Near-RT RIC 325, the Non-RT RIC 315 may receive parameters or external enrichment information from external servers. Such information may be utilized by the Near-RT RIC 325 and may be received at the SMO Framework 305 or the Non-RT RIC 315 from non-network data sources or from network functions. In some examples, the Non-RT RIC 315 or the Near-RT RIC 325 may be configured to tune RAN behavior or performance. For example, the Non-RT RIC 315 may monitor long-term trends and patterns for performance and employ AI/ML models to perform corrective actions through the SMO Framework 305 (such as reconfiguration via an O1 interface) or via creation of RAN management policies (such as A1 interface policies).

[0084] As indicated above, Fig. 3 is provided as an example. Other examples may differ from what is described with regard to Fig. 3.

[0085] Fig. 4 is a diagram illustrating an example 400 of full duplex (FD) communication, in accordance with the present disclosure.

[0086] An FD communication is a communication that utilizes overlapped time resources at a single node (such as a UE or a base station) for transmission and reception. For example, a UE or a network node may perform a transmission and a reception using the same time resources, such as via frequency division multiplexing (FDM) or spatial division multiplexing (SDM). "FDM" refers to performing two or more communications using different frequency resource allocations. "SDM" refers to performing two or more communications using different spatial parameters, such as different TCI states defining different beams. An SDM communication can use overlapped time resources and frequency resources, and an FDM communication can use overlapped time resources and spatial resources (that is, overlapped beam parameters, TCI states, or the like). A TCI state indicates a spatial parameter for a communication. For example, a TCI state for a communication may identify a source signal (such as a synchronization signal block, a channel state information reference signal, or the like) and a spatial parameter to be derived from the source signal for the purpose of transmitting or receiving the communication. For example, the TCI state may indicate a QCL type. A QCL type may indicate one or more spatial parameters to be derived from the source signal. The source signal may be referred to as a QCL source. FD communications can include dynamic traffic (such as scheduled by downlink control information (DCI)) and/or semi-static traffic. Semi-static traffic is traffic associated with a semi-persistent resource, such as a semi-persistent scheduling (SPS) configured resource or a configured grant (CG).

[0087] Example 400 includes two UEs, shown as UE1 402-1 and UE2 402-2, and a network node 404, where the UE1 402-1 is receiving a downlink transmission from the network node 404 and the UE2 402-2 is transmitting an uplink transmission to the network node 404. Full duplex is enabled for the network node 404, but not necessarily for UE1 402-1 and UE2 402-2 (e.g., the UE1 402-1 and/or the UE2 402-2 may be operating in a half-duplex communication mode).

[0088] Resources (e.g., slots and/or symbols) can be configured to have an SBFD format. A resource having an SBFD format includes one or more SBFD symbols. An SBFD symbol is a symbol with one or more subbands (referred to herein as SBFD subbands) that a network node (such as a gNB) can use or will use for SBFD operation. For SBFD operation within a TDD carrier, an SBFD subband may include one resource block, or a set of consecutive resource blocks, for a same transmission direction. In some aspects, for SBFD operation within a TDD carrier, an SBFD subband consists of one resource block, or a set of consecutive resource blocks, for a same transmission direction. In some aspects, "SBFD symbols" are defined as symbols with subbands that a network node would use for SBFD operation. In some aspects, for SBFD operation within a TDD carrier, an SBFD subband consists of one resource block (RB) or a set of consecutive RBs for the same transmission direction.

[0089] An SBFD resource (that is, a resource having an SBFD format) may include one or more symbols and/or one or more slots. As mentioned above, an SBFD resource may include at least one uplink subband (that is, a subband used for uplink communication by a UE) and at least one downlink subband (that is, a subband used for downlink communication by a UE). Example 406 includes two non-contiguous downlink subbands and one uplink subband, each adjacent pair of subbands separated from one another by a guard band (GB). Example 408 includes one downlink subband and one uplink subband, separated by a GB. The two downlink subbands of example 406 may be used by a single UE, or may be used by different UEs (e.g., a first UE for a first downlink subband and a second UE for a second downlink subband). A subband may include one or multiple consecutive resource blocks associated with a transmission direction. Here, example 406 includes two subbands associated with a downlink transmission direction and one subband associated with an uplink transmission direction, and example 408 includes one subband associated with a downlink transmission direction and one subband associated with an uplink transmission direction. Examples 406 and 408 illustrate a symbol having an SBFD format (e.g., a symbol in which there is a set of resource blocks comprising at least one downlink subband and a set of resource blocks comprising at least one uplink subband), a slot having an SBFD format (e.g., a slot in which there is at least one downlink subband and at least one uplink subband), or another time resource having an SBFD format.

[0090] In a resource with an SBFD format, a network node 404 may perform simultaneous transmission of downlink transmissions and reception of uplink transmissions on a subband basis. For example, the network node 404 may simultaneously communicate with UE1 402-1 on the downlink and UE2 402-2 on the uplink. In some examples, UE1 402-1 and/or UE2 402-2 may be configured with only the subband(s) in use by UE1 402-1 and/or UE2 402-2 for communication. For example, UE1 402-1 may be configured with only downlink subbands, and UE2 402-2 may be configured with only uplink subbands of an SBFD formatted resource. This may be because, for example, UE1 402-1 and/or UE2 402-2 do not have a capability for SBFD communication. In some examples, UE1 402-1 and/or UE2 402-2 may be configured to utilize an SBFD formatted resource. For example, if a UE has a capability for SBFD communication, the UE may be aware that a given resource has an SBFD format (while utilizing the resource in only one transmission direction), or may perform FD communication in the given resource.

[0091] In some cases, various configurations can be developed to facilitate inter-network node and inter-UE cross link interference (CLI) handling. For example, configurations may be designed in consideration of intra-subband CLI and inter-subband CLI in scenarios involving subband non-overlapping FD. In some cases, the configurations can include at least one of a configured DL and UL BWP pair and/or a BWP set having three or more BWPs. However, in some cases, BWP pairs and/or sets can be only configured for one of HD operations or SBFD operations, but not both.

[0092] Some aspects of the techniques and apparatuses described herein provide configurations for mixed HD/SBFD communications associated with a TDD carrier. For example, in some aspects, a UE may receive configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier. The SBFD configuration may correspond to one or more BWPs associated with a plurality of resources. The plurality of resources may include at least one HD resource and at least one SBFD resource. The one or more BWPs may include at least one of a DL BWP or a UL BWP. The UE may communicate based on the configuration information.

[0093] In some aspects, for example, the configuration information may configure an SBFD scheme within a single configured DL and UL BWP pair with unaligned center frequencies. In this way, due to resulting narrow bandwidth in both HD and SBFD resources (e.g., for cell edge UEs), a UE may save power and UL resources and a network node may provide flexible UL scheduling, which may facilitate more efficient UL scheduling across slots. In some aspects, for example, the configuration information may configure an SBFD scheme with more than one configured DL and UL BWP pair with aligned and/or unaligned center frequencies for a DL and UL BWP pair. In some aspects, the SBFD configuration may be configured as a per-BWP based SBFD configuration with unaligned center frequencies. In this way, each subband may

be associated with a respective TDD slot format, thereby facilitating more efficient utilization of resources.

[0094] Fig. 5 is a diagram illustrating an example 500 associated with BWP configurations for mixed HD/SBFD communications, in accordance with the present disclosure. As shown, example 500 includes a UE 502, a UE 504, and a network node 506 in communication with one another. In some aspects, the UE 502 and/or the UE 504 may be, be similar to, include, or be included in, the UE 120 depicted in Figs. 1-3, the UE1 402-1 depicted in Fig. 4, and/or the UE2 402-2 depicted in Fig. 4. In some aspects, the network node 506 may be, be similar to, include, or be included in, the network node 110 depicted in Figs. 1 and 2, one or more components of the disaggregated base station architecture 300 depicted in Fig. 3, and/or the network node 404 depicted in Fig. 4.

[0095] As shown by reference number 508, the network node 506 may transmit, and the UE 502 may receive, configuration information. The configuration information may be indicative of an SBFD configuration for communicating, based on an HD configuration at the UE 502, with the network node 506. As shown by reference number 510, the network node 506 may transmit, and the UE 504 may receive, configuration information indicative of the SBFD configuration. In some aspects, the SBFD configuration may correspond to FD operations by the network node 506. The UE 502 and the UE 504 may be configured for HD operation. For example, the SBFD configuration may configure the UE 502 for downlink HD communications and the UE 504 for uplink HD communications. The SBFD configuration may be referred to as a mixed HD/SBFD configuration due to the UE 502 and UE 504 being configured for HD operations.

[0096] The SBFD configuration may be associated with a time division duplexing (TDD) carrier. In some aspects, the SBFD configuration may correspond to one or more BWPs associated with a plurality of resources. The plurality of resources may include at least one HD resource and at least one SBFD resource. The plurality of resources may include time domain resources such as symbols, slots, half-slots, time periods, and/or partial symbols, among other examples.

[0097] In some aspects, the one or more BWPs may include one or more DL BWPs and/or one or more uplink BWPs. In some aspects, for example, as shown by reference number 512, the one or more BWPs may include a single bidirectional BWP pair associated with the plurality of resources. A bidirectional BWP pair is a pair of BWPs (two BWPs) in which one BWP is associated with a first communication direction (e.g., UL) and the other BWP is associated with a second communication direction (e.g., DL). In some aspects, as shown, the BWPs of the BWP pair may include unaligned center frequencies. For example, a center frequency 514 associated with the DL BWP may be different than a center frequency 516 associated with the UL BWP. Also, as shown, a width of the DL BWP may be different than (e.g., wider than) a

width of the UL BWP. In some aspects, a first BWP identifier (ID) may be associated with the DL BWP and a second BWP ID may be associated with the UL BWP. In some aspects, the second BWP ID may be equal to the first BWP ID (e.g., the DL BWP and the UL BWP may have the same BWP ID). In some other aspects, the second BWP ID may be different from the first BWP ID (e.g., the DL BWP and the UL BWP may have different BWP IDs).

[0098] In some aspects, the one or more BWPs may include a first plurality of BWPs and a second plurality of BWPs. The first plurality of BWPs may be associated with a set of HD resources of the plurality of resources and the second plurality of BWPs may be associated with a set of SBFD resources of the plurality of resources. For example, as shown by reference number 518, the first plurality of BWPs may include a first bidirectional BWP pair including a DL BWP and a UL BWP ("DL/UL BWP1"). The second plurality of BWPs may include a second bidirectional BWP pair including a DL BWP2 and a UL BWP2. As shown, for example, the DL BWP1 may be a non-contiguous BWP corresponding to a first DL subband and a second DL subband. In some aspects, the non-contiguous BWP may correspond to more than two subbands.

[0099] In some aspects, the second plurality of BWPs may include two or more BWPs ("DL BWP2" and "UL BWP2"). A BWP set is a plurality of BWPs that includes three or more BWPs. The configuration may include a BWP switch delay, which may be a time period configured to allow for switching between the BWP pair and the BWP set. In some aspects, each BWP of the BWP set may correspond to a respective subband of a plurality of subbands and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is identical to each other of the plurality of center frequencies or different from each other of the plurality of center frequencies.

[0100] In some aspects, the BWP set may include two DL BWPs and one UL BWP. In some aspects, the BWP set may include a first BWP associated with a communication direction and a BWP ID, and a second BWP associated with the communication direction and the BWP ID, wherein a first sub-ID is associated with the first BWP and a second sub-ID is associated with the second BWP. In some aspects, a configuration associated with a first sub-ID may be different from a configuration associated with a second sub-ID. Some aspects of the configurations may overlap. In some aspects, at least two BWPs of the three or more BWPs may correspond to different respective BWP IDs. A BWP set ID associated with the BWP set may be indicative of a link between the different respective BWP IDs.

[0101] As shown by reference number 520, the network node 506 may transmit, and the UE 502 may receive, a BWP switch indication. In some aspects, the BWP switch indication may indicate a switch from a prior active one or more BWPs to the BWP set. In some aspects, the BWP switch indication may include a BWP field that indicates the BWP set ID. In some

aspects, the BWP switch indication may include a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0102] In some aspects, the BWP set may include a first DL BWP and a second DL BWP, and a set of operating parameters may correspond to the first DL BWP and the second DL BWP. The set of operating parameters may be configured in association with only the first DL BWP and applied to both the first DL BWP and the second DL BWP. In some aspects, the set of operating parameters may be configured independently of both of the first DL BWP and the second DL BWP.

[0103] In some aspects, the one or more BWPs may include a BWP set including three or more BWPs, and the BWP switch indication may indicate a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a set ID associated with the BWP set. The BWP set ID may be configured to not collide with a BWP ID (e.g., the BWP set ID may be different than any BWP ID in a configuration and/or different than any BWP ID associated with a BWP pair). The one or more BWPs may include a BWP set including three or more BWPs, and the BWP switch indication may indicate a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID associated with a BWP of the BWP set. In some aspects, the BWP switch indication may indicate a switch from a prior active one or more BWPs to a BWP of the one or more BWPs.

[0104] In some aspects, the BWP switch indication may include a plurality of BWP fields. In some aspects, the plurality of BWP fields may include an indication in only one BWP field of the plurality of BWP fields based on the one or more BWPs comprising a BWP pair, wherein the indication indicates a BWP ID associated with the BWP. The one or more BWPs may comprise a BWP set including three or more BWPs, and the plurality of BWP fields may include at least three indications, in respective BWP fields of an initial set of BWP fields of the plurality of BWP fields, that indicate respective BWP IDs associated with the three or more BWPs

[0105] In some aspects, as shown by reference number 522, the one or more BWPs may include a single BWP set associated with the plurality of resources. For example, the BWP set may include a first BWP ("BWP0"), a second BWP ("BWP1"), and a third BWP ("BWP2"). As shown, the BWP set may include unaligned center frequencies. For example, a center frequency 524 associated with BWP0 may be different from a center frequency 526 associated with BWP1, which may be different from a center frequency 528 associated with BWP2.

[0106] In some aspects, for example, each BWP of the BWP set may include a subband, and each subband may correspond to a respective TDD slot format pattern. A TDD slot format pattern is a pattern according to which a number of slots are scheduled for and/or configured for

use in a UL communication, a DL communication, or as flexible ("F"). A flexible slot may be used for either a UL communication or a DL communication. A resource configured and/or scheduled for use for a UL communication may be described as having a UL format. A resource configured and/or scheduled for use for a DL communication may be described as having a DL format. A resource configured and/or scheduled to include only flexible resources may be described as having an F format. All symbols within each slot may all be assigned alike (e.g., all "UL," all "DL," or all "F"), or else the slot may include multiple symbol assignment types.

[0107] In some aspects, each BWP of the single BWP set may be associated with a single BWP ID. The single BWP set may include two BWPs associated with a communication direction, and each of the two BWPs may be associated with a different respective BWP sub-ID. A first BWP of the two BWPs may correspond to a first set of operating parameters and a second BWP of the two BWPs may correspond to a second set of operating parameters. For example, in some aspects, the first BWP ID may correspond to the first set of operating parameters and the second BWP ID may correspond to the second set of operating parameters. In some aspects, the first set of operating parameters may at least partially overlap the second set of operating parameters.

[0108] In some aspects, at least two BWPs of the three or more BWPs may correspond to different respective BWP IDs. A BWP set ID associated with the single BWP set may be indicative of a link between the different respective BWP IDs. As described herein in connection with reference number 520, a BWP switch indication may indicate a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. In some aspects, the BWP switch indication may indicate a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0109] In some aspects, the single BWP set may include a first DL BWP and a second DL BWP, and a set of operating parameters may correspond to the first DL BWP and the second DL BWP. The set of operating parameters may be configured in association with only the first DL BWP, and applied to both the first DL BWP and the second DL BWP. In some other aspects, the set of operating parameters may be configured independently of both of the first DL BWP and the second DL BWP.

[0110] As shown by reference number 530, the UE 502 and the network node 506 may communicate with one another. For example, the UE 502 and the network node 506 may communicate with one another based on the configuration information. As shown by reference number 532, the UE 504 and the network node 506 may communicate with one another. For

example, the UE 504 and the network node 506 may communicate with one another based on the configuration information.

[0111] As indicated above, Fig. 5 is provided as an example. Other examples may differ from what is described with regard to Fig. 5.

[0112] Fig. 6 is a diagram illustrating an example process 600 performed, for example, by a UE, in accordance with the present disclosure. Example process 600 is an example where the UE (e.g., UE 502) performs operations associated with BWP configurations for mixed HD and SBFD communications.

[0113] As shown in Fig. 6, in some aspects, process 600 may include receiving configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP (block 610). For example, the UE (e.g., using communication manager 808 and/or reception component 802, depicted in Fig. 8) may receive configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP, as described above.

[0114] As further shown in Fig. 6, in some aspects, process 600 may include communicating based on the configuration information (block 620). For example, the UE (e.g., using communication manager 808, reception component 802, and/or transmission component 804, depicted in Fig. 8) may communicate based on the configuration information, as described above.

[0115] Process 600 may include additional aspects, such as any single aspect or any combination of aspects described below and/or in connection with one or more other processes described elsewhere herein.

[0116] In a first aspect, the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP. In a second aspect, alone or in combination with the first aspect, a first center frequency associated with the DL BWP is different than a second center frequency associated with the UL BWP. In a third aspect, alone or in combination with one or more of the first and second aspects, a first BWP ID is associated with the DL BWP and a second BWP ID is associated with the UL BWP. In a fourth aspect, alone or in combination with the third aspect, the second BWP ID is equal to the first BWP ID.

In a fifth aspect, alone or in combination with the third aspect, the second BWP ID is different from the first BWP ID.

[0117] In a sixth aspect, the one or more BWPs comprise a first plurality of BWPs and a second plurality of BWPs, wherein the first plurality of BWPs is associated with a set of HD resources of the plurality of resources and the second plurality of BWPs is associated with a set of SBFD resources of the plurality of resources. In a seventh aspect, alone or in combination with the sixth aspect, the first plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP. In an eighth aspect, alone or in combination with one or more of the sixth or seventh aspects, the second plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP. In a ninth aspect, alone or in combination with the eighth aspect, the DL BWP comprises a non-contiguous DL BWP corresponding to a first DL subband and a second DL subband.

[0118] In a tenth aspect, alone or in combination with the sixth aspect, the second plurality of BWPs comprises a BWP set including three or more BWPs, wherein each BWP of the BWP set corresponds to a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is identical to each other of the plurality of center frequencies or different from each other of the plurality of center frequencies. In an eleventh aspect, alone or in combination with the tenth aspect, the BWP set includes two DL BWPs and one UL BWP. In a twelfth aspect, alone or in combination with one or more of the tenth or eleventh aspects, the BWP set comprises a first BWP associated with a communication direction and a BWP ID, and a second BWP associated with the communication direction and the BWP ID, and a first sub-ID is associated with the first BWP and a second sub-ID is associated with the second BWP. In a thirteenth aspect, alone or in combination with one or more of the tenth or eleventh aspects, at least two BWPs of the three or more BWPs correspond to different respective BWP IDs. In a fourteenth aspect, alone or in combination with the thirteenth aspect, a BWP set ID associated with the BWP set is indicative of a link between the different respective BWP IDs.

[0119] In a fifteenth aspect, alone or in combination with the fourteenth aspect, process 600 includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. In a sixteenth aspect, alone or in combination with the fourteenth aspect, process 600 includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs. In a seventeenth aspect, alone or in combination with the tenth aspect, the BWP set includes a first DL BWP and a second DL BWP, and a set of operating parameters corresponds to the first DL BWP and the second DL BWP. In an eighteenth aspect, alone or in combination with the seventeenth aspect,

the set of operating parameters is configured in association with only the first DL BWP and applied to both the first DL BWP and the second DL BWP. In a nineteenth aspect, alone or in combination with the seventeenth aspect, the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0120] In a twentieth aspect, the one or more BWPs comprise a BWP set including three or more BWPs, process 600 further includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a set ID associated with the BWP set. In a twenty-first aspect, alone or in combination with the twentieth aspect, the BWP set ID is not associated with a BWP ID.

[0121] In a twenty-second aspect, the one or more BWPs comprise a BWP set including three or more BWPs, process 600 further includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID associated with a BWP of the BWP set. In a twenty-third aspect, process 600 includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields. In a twenty-fourth aspect, alone or in combination with the twenty-third aspect, the plurality of BWP fields includes an indication in only one BWP field of the plurality of BWP fields based on the one or more BWPs comprising a BWP pair, wherein the indication indicates a BWP ID associated with the BWP. In a twenty-fifth aspect, alone or in combination with the twenty-third aspect, the one or more BWPs comprise a BWP set including three or more BWPs, wherein the plurality of BWP fields includes at least three indications, in respective BWP fields of an initial set of BWP fields of the plurality of BWP fields, that indicate respective BWP IDs associated with the three or more BWPs.

[0122] In a twenty-sixth aspect, the one or more BWPs comprise a single BWP set corresponding to the plurality of resources, wherein the single BWP set includes three or more BWPs, and each BWP of the single BWP set corresponds to a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is different from each other of the plurality of center frequencies. In a twenty-seventh aspect, alone or in combination with the twenty-sixth aspect, each BWP of the single BWP set corresponds to a respective slot format of a plurality of slot formats. In a twenty-eighth aspect, alone or in combination with one or more of the twenty-sixth or twenty-seventh aspects, each BWP of the single BWP set is associated with a single BWP ID. In a twenty-ninth aspect, alone or in combination with the twenty-eighth aspect, the single BWP set comprises two BWPs associated with a communication direction, and each of the two BWPs is associated with a different respective BWP sub-ID. In a thirtieth aspect, alone

or in combination with one or more of the twenty-eighth or twenty-ninth aspects, a first BWP of the two BWPs corresponds to a first set of operating parameters and a second BWP of the two BWPs corresponds to a second set of operating parameters. In a thirty-first aspect, alone or in combination with the thirtieth aspect, the first set of operating parameters at least partially overlaps the second set of operating parameters.

[0123] In a thirty-second aspect, alone or in combination with the twenty-sixth aspect, at least two BWPs of the three or more BWPs correspond to different respective BWP IDs. In a thirty-third aspect, alone or in combination with the thirty-second aspect, a BWP set ID associated with the single BWP set is indicative of a link between the different respective BWP IDs. In a thirty-fourth aspect, alone or in combination with one or more of the first through thirty-third aspects, process 600 includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID.

[0124] In a thirty-fifth aspect, alone or in combination with one or more of the first through thirty-third aspects, process 600 includes receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs. In a thirty-sixth aspect, alone or in combination with one or more of the first through thirty-third aspects, the single BWP set includes a first DL BWP and a second DL BWP, and a set of operating parameters corresponds to the first DL BWP and the second DL BWP. In a thirty-seventh aspect, alone or in combination with the thirty-sixth aspect, the set of operating parameters is configured in association with only the first DL BWP, and applied to both the first DL BWP and the second DL BWP. In a thirty-eighth aspect, alone or in combination with the thirty-seventh aspect, the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0125] Although Fig. 6 shows example blocks of process 600, in some aspects, process 600 may include additional blocks, fewer blocks, different blocks, or differently arranged blocks than those depicted in Fig. 6. Additionally, or alternatively, two or more of the blocks of process 600 may be performed in parallel.

[0126] Fig. 7 is a diagram illustrating an example process 700 performed, for example, by a network node, in accordance with the present disclosure. Example process 700 is an example where the network node (e.g., network node 506) performs operations associated with BWP configurations for mixed HD and SBFD communications.

[0127] As shown in Fig. 7, in some aspects, process 700 may include transmitting configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD

configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP (block 710). For example, the network node (e.g., using communication manager 908 and/or transmission component 904, depicted in Fig. 9) may transmit configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a DL BWP or a UL BWP, as described above.

[0128] As further shown in Fig. 7, in some aspects, process 700 may include communicating based on the configuration information (block 720). For example, the network node (e.g., using communication manager 908, reception component 902, and/or transmission component 904, depicted in Fig. 9) may communicate based on the configuration information, as described above.

[0129] Process 700 may include additional aspects, such as any single aspect or any combination of aspects described below and/or in connection with one or more other processes described elsewhere herein.

[0130] In a first aspect, the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP. In a second aspect, alone or in combination with the first aspect, a first center frequency associated with the DL BWP is different than a second center frequency associated with the UL BWP. In a third aspect, alone or in combination with one or more of the first and second aspects, a first BWP ID is associated with the DL BWP and a second BWP ID is associated with the UL BWP. In a fourth aspect, alone or in combination with the third aspect, the second BWP ID is equal to the first BWP ID. In a fifth aspect, alone or in combination with the third aspect, the second BWP ID is different from the first BWP ID.

[0131] In a sixth aspect, the one or more BWPs comprise a first plurality of BWPs and a second plurality of BWPs, wherein the first plurality of BWPs is associated with a set of HD resources of the plurality of resources and the second plurality of BWPs is associated with a set of SBFD resources of the plurality of resources. In a seventh aspect, alone or in combination with the sixth aspect, the first plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP. In an eighth aspect, alone or in combination with one or more of the sixth through seventh aspects, the second plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP. In a ninth aspect, alone or in combination with the eighth

aspect, the DL BWP comprises a non-contiguous DL BWP corresponding to a first DL subband and a second DL subband.

[0132] In a tenth aspect, alone or in combination with the sixth aspect, the second plurality of BWPs comprises a BWP set including three or more BWPs, wherein each BWP of the BWP set corresponds to a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is identical to each other of the plurality of center frequencies or different from each other of the plurality of center frequencies. In an eleventh aspect, alone or in combination with the tenth aspect, the BWP set includes two DL BWPs and one UL BWP. In a twelfth aspect, alone or in combination with one or more of the tenth or eleventh aspects, the BWP set comprises a first BWP associated with a communication direction and a BWP ID, and a second BWP associated with the communication direction and the BWP ID, and a first sub-ID is associated with the first BWP and a second sub-ID is associated with the second BWP. In a thirteenth aspect, alone or in combination with one or more of the tenth through twelfth aspects, at least two BWPs of the three or more BWPs correspond to different respective BWP IDs. In a fourteenth aspect, alone or in combination with the thirteenth aspect, a BWP set ID associated with the BWP set is indicative of a link between the different respective BWP IDs.

[0133] In a fifteenth aspect, alone or in combination with the fourteenth aspect, process 700 includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. In a sixteenth aspect, alone or in combination with the fourteenth aspect, process 700 includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs. In a seventeenth aspect, alone or in combination with the tenth aspect, the BWP set includes a first DL BWP and a second DL BWP, and a set of operating parameters corresponds to the first DL BWP and the second DL BWP. In an eighteenth aspect, alone or in combination with the seventeenth aspect, the set of operating parameters is configured in association with only the first DL BWP and applied to both the first DL BWP and the second DL BWP.

[0134] In a nineteenth aspect, alone or in combination with the seventeenth aspect, the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP. In a twentieth aspect, the one or more BWPs comprise a BWP set including three or more BWPs, and process 700 further includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a set ID associated with the BWP set. In a twenty-first aspect, alone or in combination with the twentieth aspect, the BWP set ID is not associated with a BWP ID.

[0135] In a twenty-second aspect, the one or more BWPs comprise a BWP set including three or more BWPs, and process 700 further includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID associated with a BWP of the BWP set. In a twenty-third aspect, alone or in combination with one or more of the first through twenty-second aspects, process 700 includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields. In a twenty-fourth aspect, alone or in combination with the twenty-third aspect, the plurality of BWP fields includes an indication in only one BWP field of the plurality of BWP fields based on the one or more BWPs comprising a BWP pair, wherein the indication indicates a BWP ID associated with the BWP. In a twenty-fifth aspect, alone or in combination with the twenty-third aspect, the one or more BWPs comprise a BWP set including three or more BWPs, wherein the plurality of BWP fields includes at least three indications, in respective BWP fields of an initial set of BWP fields of the plurality of BWP fields, that indicate respective BWP IDs associated with the three or more BWPs.

[0136] In a twenty-sixth aspect, the one or more BWPs comprise a single BWP set corresponding to the plurality of resources, wherein the single BWP set includes three or more BWPs, and each BWP of the single BWP set corresponds to a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is different from each other of the plurality of center frequencies. In a twenty-seventh aspect, alone or in combination with the twenty-sixth aspect, each BWP of the single BWP set corresponds to a respective slot format of a plurality of slot formats. In a twenty-eighth aspect, alone or in combination with one or more of the twenty-sixth or twenty-seventh aspects, each BWP of the single BWP set is associated with a single BWP ID. In a twenty-ninth aspect, alone or in combination with the twenty-eighth aspect, the single BWP set comprises two BWPs associated with a communication direction, and each of the two BWPs is associated with a different respective BWP sub-ID.

[0137] In a thirtieth aspect, alone or in combination with the twenty-ninth aspect, a first BWP of the two BWPs corresponds to a first set of operating parameters and a second BWP of the two BWPs corresponds to a second set of operating parameters. In a thirty-first aspect, alone or in combination with the thirtieth aspect, the first set of operating parameters at least partially overlaps the second set of operating parameters. In a thirty-second aspect, alone or in combination with the twenty-sixth aspect, at least two BWPs of the three or more BWPs correspond to different respective BWP IDs. In a thirty-third aspect, alone or in combination with the thirty-second aspect, a BWP set ID associated with the single BWP set is indicative of a link between the different respective BWP IDs.

[0138] In a thirty-fourth aspect, alone or in combination with the thirty-third aspect, process 700 includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. In a thirty-fifth aspect, alone or in combination with the thirty-third aspect, process 700 includes transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs. In a thirty-sixth aspect, alone or in combination with the twenty-sixth aspect, the single BWP set includes a first DL BWP and a second DL BWP, and a set of operating parameters corresponds to the first DL BWP and the second DL BWP. In a thirty-seventh aspect, alone or in combination with the thirty-sixth aspect, the set of operating parameters is configured in association with only the first DL BWP, and applied to both the first DL BWP and the second DL BWP. In a thirty-eighth aspect, alone or in combination with the thirty-sixth aspect, the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0139] Although Fig. 7 shows example blocks of process 700, in some aspects, process 700 may include additional blocks, fewer blocks, different blocks, or differently arranged blocks than those depicted in Fig. 7. Additionally, or alternatively, two or more of the blocks of process 700 may be performed in parallel.

[0140] Fig. 8 is a diagram of an example apparatus 800 for wireless communication, in accordance with the present disclosure. The apparatus 800 may be a UE, or a UE may include the apparatus 800. In some aspects, the apparatus 800 includes a reception component 802 and a transmission component 804, which may be in communication with one another (for example, via one or more buses and/or one or more other components). As shown, the apparatus 800 may communicate with another apparatus 806 (such as a UE, a base station, or another wireless communication device) using the reception component 802 and the transmission component 804. As further shown, the apparatus 800 may include a communication manager 808.

[0141] In some aspects, the apparatus 800 may be configured to perform one or more operations described herein in connection with Fig. 5. Additionally, or alternatively, the apparatus 800 may be configured to perform one or more processes described herein, such as process 600 of Fig. 6. In some aspects, the apparatus 800 and/or one or more components shown in Fig. 8 may include one or more components of the UE described in connection with Fig. 2. Additionally, or alternatively, one or more components shown in Fig. 8 may be implemented within one or more components described in connection with Fig. 2. Additionally, or alternatively, one or more components of the set of components may be implemented at least in part as software stored in a memory. For example, a component (or a portion of a component) may be implemented as instructions or code stored in a non-transitory computer-

readable medium and executable by a controller or a processor to perform the functions or operations of the component.

[0142] The reception component 802 may receive communications, such as reference signals, control information, data communications, or a combination thereof, from the apparatus 806. The reception component 802 may provide received communications to one or more other components of the apparatus 800. In some aspects, the reception component 802 may perform signal processing on the received communications (such as filtering, amplification, demodulation, analog-to-digital conversion, demultiplexing, deinterleaving, de-mapping, equalization, interference cancellation, or decoding, among other examples), and may provide the processed signals to the one or more other components of the apparatus 800. In some aspects, the reception component 802 may include one or more antennas, a modem, a demodulator, a MIMO detector, a receive processor, a controller/processor, a memory, or a combination thereof, of the UE described in connection with Fig. 2.

[0143] The transmission component 804 may transmit communications, such as reference signals, control information, data communications, or a combination thereof, to the apparatus 806. In some aspects, one or more other components of the apparatus 800 may generate communications and may provide the generated communications to the transmission component 804 for transmission to the apparatus 806. In some aspects, the transmission component 804 may perform signal processing on the generated communications (such as filtering, amplification, modulation, digital-to-analog conversion, multiplexing, interleaving, mapping, or encoding, among other examples), and may transmit the processed signals to the apparatus 806. In some aspects, the transmission component 804 may include one or more antennas, a modem, a modulator, a transmit MIMO processor, a transmit processor, a controller/processor, a memory, or a combination thereof, of the UE described in connection with Fig. 2. In some aspects, the transmission component 804 may be co-located with the reception component 802 in a transceiver.

[0144] In some examples, means for transmitting, outputting, or sending (or means for outputting for transmission) may include one or more antennas, a modulator, a transmit MIMO processor, a transmit processor, or a combination thereof, of the UE described above in connection with Fig. 2.

[0145] In some examples, means for receiving (or means for obtaining) may include one or more antennas, a demodulator, a MIMO detector, a receive processor, or a combination thereof, of the UE described above in connection with Fig. 2.

[0146] In some cases, rather than actually transmitting, for example, signals and/or data, a device may have an interface to output signals and/or data for transmission (a means for outputting). For example, a processor may output signals and/or data, via a bus interface, to an

RF front end for transmission. Similarly, rather than actually receiving signals and/or data, a device may have an interface to obtain the signals and/or data received from another device (a means for obtaining). For example, a processor may obtain (or receive) the signals and/or data, via a bus interface, from an RF front end for reception. In various aspects, an RF front end may include various components, including transmit and receive processors, transmit and receive MIMO processors, modulators, demodulators, and the like, such as depicted in the examples in Fig. 2.

[0147] In some examples, means for receiving, transmitting, and/or communicating may include various processing system components, such as a receive processor, a transmit processor, a controller/processor, a memory, or a combination thereof, of the UE described above in connection with Fig. 2.

[0148] The communication manager 808 and/or the reception component 802 may receive configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at the UE, with a full duplex network node associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink BWP or an uplink BWP. In some aspects, the communication manager 808 may include one or more antennas, a modem, a controller/processor, a memory, or a combination thereof, of the UE described in connection with Fig. 2. In some aspects, the communication manager 808 may include the reception component 802 and/or the transmission component 804. In some aspects, the communication manager 808 may be, be similar to, include, or be included in, the communication manager 140 depicted in Figs. 1 and 2. The communication manager 808, reception component 802, and/or transmission component 804 may communicate based on the configuration information.

[0149] The communication manager 808 and/or the reception component 802 may receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. The communication manager 808 and/or the reception component 802 may receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs. The communication manager 808 and/or the reception component 802 may receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields. The communication manager 808 and/or the reception component 802 may receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. The communication manager 808 and/or the

reception component 802 may receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0150] The number and arrangement of components shown in Fig. 8 are provided as an example. In practice, there may be additional components, fewer components, different components, or differently arranged components than those shown in Fig. 8. Furthermore, two or more components shown in Fig. 8 may be implemented within a single component, or a single component shown in Fig. 8 may be implemented as multiple, distributed components. Additionally, or alternatively, a set of (one or more) components shown in Fig. 8 may perform one or more functions described as being performed by another set of components shown in Fig. 8.

[0151] Fig. 9 is a diagram of an example apparatus 900 for wireless communication, in accordance with the present disclosure. The apparatus 900 may be a network node, or a network node may include the apparatus 900. In some aspects, the apparatus 900 includes a reception component 902 and a transmission component 904, which may be in communication with one another (for example, via one or more buses and/or one or more other components). As shown, the apparatus 900 may communicate with another apparatus 906 (such as a UE, a base station, or another wireless communication device) using the reception component 902 and the transmission component 904. As further shown, the apparatus 900 may include a communication manager 908.

[0152] In some aspects, the apparatus 900 may be configured to perform one or more operations described herein in connection with Fig. 5. Additionally, or alternatively, the apparatus 900 may be configured to perform one or more processes described herein, such as process 700 of Fig. 7. In some aspects, the apparatus 900 and/or one or more components shown in Fig. 9 may include one or more components of the network node described in connection with Fig. 2. Additionally, or alternatively, one or more components shown in Fig. 9 may be implemented within one or more components described in connection with Fig. 2. Additionally, or alternatively, one or more components of the set of components may be implemented at least in part as software stored in a memory. For example, a component (or a portion of a component) may be implemented as instructions or code stored in a non-transitory computer-readable medium and executable by a controller or a processor to perform the functions or operations of the component.

[0153] The reception component 902 may receive communications, such as reference signals, control information, data communications, or a combination thereof, from the apparatus 906. The reception component 902 may provide received communications to one or more other components of the apparatus 900. In some aspects, the reception component 902 may perform signal processing on the received communications (such as filtering, amplification,

demodulation, analog-to-digital conversion, demultiplexing, deinterleaving, de-mapping, equalization, interference cancellation, or decoding, among other examples), and may provide the processed signals to the one or more other components of the apparatus 900. In some aspects, the reception component 902 may include one or more antennas, a modem, a demodulator, a MIMO detector, a receive processor, a controller/processor, a memory, or a combination thereof, of the network node described in connection with Fig. 2.

[0154] The transmission component 904 may transmit communications, such as reference signals, control information, data communications, or a combination thereof, to the apparatus 906. In some aspects, one or more other components of the apparatus 900 may generate communications and may provide the generated communications to the transmission component 904 for transmission to the apparatus 906. In some aspects, the transmission component 904 may perform signal processing on the generated communications (such as filtering, amplification, modulation, digital-to-analog conversion, multiplexing, interleaving, mapping, or encoding, among other examples), and may transmit the processed signals to the apparatus 906. In some aspects, the transmission component 904 may include one or more antennas, a modem, a modulator, a transmit MIMO processor, a transmit processor, a controller/processor, a memory, or a combination thereof, of the network node described in connection with Fig. 2. In some aspects, the transmission component 904 may be co-located with the reception component 902 in a transceiver.

[0155] In some examples, means for transmitting, outputting, or sending (or means for outputting for transmission) may include one or more antennas, a modulator, a transmit MIMO processor, a transmit processor, or a combination thereof, of the network node described above in connection with Fig. 2.

[0156] In some examples, means for receiving (or means for obtaining) may include one or more antennas, a demodulator, a MIMO detector, a receive processor, or a combination thereof, of the network node described above in connection with Fig. 2.

[0157] In some cases, rather than actually transmitting, for example, signals and/or data, a device may have an interface to output signals and/or data for transmission (a means for outputting). For example, a processor may output signals and/or data, via a bus interface, to an RF front end for transmission. Similarly, rather than actually receiving signals and/or data, a device may have an interface to obtain the signals and/or data received from another device (a means for obtaining). For example, a processor may obtain (or receive) the signals and/or data, via a bus interface, from an RF front end for reception. In various aspects, an RF front end may include various components, including transmit and receive processors, transmit and receive MIMO processors, modulators, demodulators, and the like, such as depicted in the examples in Fig. 2.

[0158] In some examples, means for receiving, transmitting, and/or communicating may include various processing system components, such as a receive processor, a transmit processor, a controller/processor, a memory, or a combination thereof, of the network node described above in connection with Fig. 2.

[0159] The communication manager 908 and/or the transmission component 904 may transmit configuration information indicative of an SBFD configuration for communicating, based on an HD configuration at a UE, with the network node and associated with a TDD carrier, the SBFD configuration corresponding to one or more BWPs associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink BWP or an uplink BWP.

[0160] In some aspects, the communication manager 908 may include one or more antennas, a modem, a controller/processor, a memory, or a combination thereof, of the network node described in connection with Fig. 2. In some aspects, the communication manager 908 may include the reception component 902 and/or the transmission component 904. In some aspects, the communication manager 908 may be, be similar to, include, or be included in, the communication manager 150 depicted in Figs. 1 and 2. The communication manager 908, the reception component 902, and/or the transmission component 904 may communicate based on the configuration information.

[0161] The communication manager 908 and/or the transmission component 904 may transmit a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. The communication manager 908 and/or the transmission component 904 may transmit a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs. The communication manager 908 and/or the transmission component 904 may transmit a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields. The communication manager 908 and/or the transmission component 904 may transmit a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID. The communication manager 908 and/or the transmission component 904 may transmit a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0162] The number and arrangement of components shown in Fig. 9 are provided as an example. In practice, there may be additional components, fewer components, different

components, or differently arranged components than those shown in Fig. 9. Furthermore, two or more components shown in Fig. 9 may be implemented within a single component, or a single component shown in Fig. 9 may be implemented as multiple, distributed components. Additionally, or alternatively, a set of (one or more) components shown in Fig. 9 may perform one or more functions described as being performed by another set of components shown in Fig. 9.

[0163] The following provides an overview of some Aspects of the present disclosure:

[0164] Aspect 1: A method of wireless communication performed by an apparatus at a user equipment (UE), comprising: receiving configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and communicating based on the configuration information.

[0165] Aspect 2: The method of Aspect 1, wherein the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP.

[0166] Aspect 3: The method of Aspect 2, wherein a first center frequency associated with the DL BWP is different than a second center frequency associated with the UL BWP.

[0167] Aspect 4: The method of either of Aspects 2 or 3, wherein a first BWP identifier (ID) is associated with the DL BWP and a second BWP ID is associated with the UL BWP.

[0168] Aspect 5: The method of Aspect 4, wherein the second BWP ID is equal to the first BWP ID.

[0169] Aspect 6: The method of Aspect 4, wherein the second BWP ID is different from the first BWP ID.

[0170] Aspect 7: The method of Aspect 1, wherein the one or more BWPs comprise a first plurality of BWPs and a second plurality of BWPs, wherein the first plurality of BWPs is associated with a set of HD resources of the plurality of resources and the second plurality of BWPs is associated with a set of SBFD resources of the plurality of resources.

[0171] Aspect 8: The method of Aspect 7, wherein the first plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP,.

[0172] Aspect 9: The method of either of Aspects 7 or 8, wherein the second plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP.

[0173] Aspect 10: The method of Aspect 9, wherein the DL BWP comprises a non-contiguous DL BWP corresponding to a first DL subband and a second DL subband.

[0174] Aspect 11: The method of Aspect 7, wherein the second plurality of BWPs comprises a BWP set including three or more BWPs, wherein each BWP of the BWP set corresponds to: a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is identical to each other of the plurality of center frequencies or different from each other of the plurality of center frequencies.

[0175] Aspect 12: The method of Aspect 11, wherein the BWP set includes two DL BWPs and one UL BWP.

[0176] Aspect 13: The method of either of Aspects 11 or 12, wherein the BWP set comprises: a first BWP associated with a communication direction and a BWP identifier (ID), and a second BWP associated with the communication direction and the BWP ID, and wherein a first sub-ID is associated with the first BWP and a second sub-ID is associated with the second BWP.

[0177] Aspect 14: The method of either of Aspects 11 or 12, wherein at least two BWPs of the three or more BWPs correspond to different respective BWP identifiers (IDs).

[0178] Aspect 15: The method of Aspect 14, wherein a BWP set ID associated with the BWP set is indicative of a link between the different respective BWP IDs.

[0179] Aspect 16: The method of Aspect 15, further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID.

[0180] Aspect 17: The method of Aspect 15, further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0181] Aspect 18: The method of Aspect 11, wherein the BWP set includes a first DL BWP and a second DL BWP, and wherein a set of operating parameters corresponds to the first DL BWP and the second DL BWP.

[0182] Aspect 19: The method of Aspect 18, wherein the set of operating parameters is configured in association with only the first DL BWP and applied to both the first DL BWP and the second DL BWP.

[0183] Aspect 20: The method of Aspect 18, wherein the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0184] Aspect 21: The method of Aspect 1, wherein the one or more BWPs comprise a BWP set including three or more BWPs, the method further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set,

wherein the BWP switch indication comprises a BWP field that indicates a set identifier (ID) associated with the BWP set.

[0185] Aspect 22: The method of Aspect 21, wherein the BWP set ID is not associated with a BWP ID.

[0186] Aspect 23: The method of Aspect 1, wherein the one or more BWPs comprise a BWP set including three or more BWPs, the method further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP identifier (ID) associated with a BWP of the BWP set.

[0187] Aspect 24: The method of Aspect 1, the method further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields.

[0188] Aspect 25: The method of Aspect 24, wherein the plurality of BWP fields includes an indication in only one BWP field of the plurality of BWP fields based on the one or more BWPs comprising a BWP pair, wherein the indication indicates a BWP identifier (ID) associated with the BWP.

[0189] Aspect 26: The method of Aspect 24, wherein the one or more BWPs comprise a BWP set including three or more BWPs, wherein the plurality of BWP fields includes at least three indications, in respective BWP fields of an initial set of BWP fields of the plurality of BWP fields, that indicate respective BWP identifiers (IDs) associated with the three or more BWPs.

[0190] Aspect 27: The method of Aspect 1, wherein the one or more BWPs comprise a single BWP set corresponding to the plurality of resources, wherein the single BWP set includes three or more BWPs, and wherein each BWP of the single BWP set corresponds to: a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is different from each other of the plurality of center frequencies.

[0191] Aspect 28: The method of Aspect 27, wherein each BWP of the single BWP set corresponds to a respective slot format of a plurality of slot formats.

[0192] Aspect 29: The method of either of Aspects 27 or 28, wherein each BWP of the single BWP set is associated with a single BWP identifier (ID).

[0193] Aspect 30: The method of Aspect 29, wherein the single BWP set comprises two BWPs associated with a communication direction, and wherein each of the two BWPs is associated with a different respective BWP sub-ID.

[0194] Aspect 31: The method of either of Aspects 29 or 30, wherein a first BWP of the two BWPs corresponds to a first set of operating parameters and a second BWP of the two BWPs corresponds to a second set of operating parameters.

[0195] Aspect 32: The method of Aspect 31, wherein the first set of operating parameters at least partially overlaps the second set of operating parameters.

[0196] Aspect 33: The method of Aspect 27, wherein at least two BWPs of the three or more BWPs correspond to different respective BWP identifiers (IDs).

[0197] Aspect 34: The method of Aspect 33, wherein a BWP set ID associated with the single BWP set is indicative of a link between the different respective BWP IDs.

[0198] Aspect 35: The method of any of Aspects 27-34, further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID.

[0199] Aspect 36: The method of any of Aspects 27-34, further comprising receiving a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0200] Aspect 37: The method of any of Aspects 27-34, wherein the single BWP set includes a first DL BWP and a second DL BWP, and wherein a set of operating parameters corresponds to the first DL BWP and the second DL BWP.

[0201] Aspect 38: The method of Aspect 37, wherein the set of operating parameters is configured in association with only the first DL BWP, and applied to both the first DL BWP and the second DL BWP.

[0202] Aspect 39: The method of Aspect 37, wherein the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0203] Aspect 40: A method of wireless communication performed by an apparatus at a network node, comprising: transmitting configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at a user equipment (UE), with the network node and associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and communicating based on the configuration information.

[0204] Aspect 41: The method of Aspect 40, wherein the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional

BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP.

[0205] Aspect 42: The method of Aspect 41, wherein a first center frequency associated with the DL BWP is different than a second center frequency associated with the UL BWP.

[0206] Aspect 43: The method of either of Aspects 41 or 42, wherein a first BWP identifier (ID) is associated with the DL BWP and a second BWP ID is associated with the UL BWP.

[0207] Aspect 44: The method of Aspect 43, wherein the second BWP ID is equal to the first BWP ID.

[0208] Aspect 45: The method of Aspect 43, wherein the second BWP ID is different from the first BWP ID.

[0209] Aspect 46: The method of Aspect 40, wherein the one or more BWPs comprise a first plurality of BWPs and a second plurality of BWPs, wherein the first plurality of BWPs is associated with a set of HD resources of the plurality of resources and the second plurality of BWPs is associated with a set of SBFD resources of the plurality of resources.

[0210] Aspect 47: The method of Aspect 46, wherein the first plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP,.

[0211] Aspect 48: The method of either of Aspects 46 or 47, wherein the second plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP.

[0212] Aspect 49: The method of Aspect 48, wherein the DL BWP comprises a non-contiguous DL BWP corresponding to a first DL subband and a second DL subband.

[0213] Aspect 50: The method of Aspect 46, wherein the second plurality of BWPs comprises a BWP set including three or more BWPs, wherein each BWP of the BWP set corresponds to: a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is identical to each other of the plurality of center frequencies or different from each other of the plurality of center frequencies.

[0214] Aspect 51: The method of Aspect 50, wherein the BWP set includes two DL BWPs and one UL BWP.

[0215] Aspect 52: The method of either of Aspects 50 or 51, wherein the BWP set comprises: a first BWP associated with a communication direction and a BWP identifier (ID), and a second BWP associated with the communication direction and the BWP ID, and wherein a first sub-ID is associated with the first BWP and a second sub-ID is associated with the second BWP.

[0216] Aspect 53: The method of any of Aspects 50-52, wherein at least two BWPs of the three or more BWPs correspond to different respective BWP identifiers (IDs).

[0217] Aspect 54: The method of Aspect 53, wherein a BWP set ID associated with the BWP set is indicative of a link between the different respective BWP IDs.

[0218] Aspect 55: The method of Aspect 54, further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID.

[0219] Aspect 56: The method of Aspect 54, further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0220] Aspect 57: The method of Aspect 50, wherein the BWP set includes a first DL BWP and a second DL BWP, and wherein a set of operating parameters corresponds to the first DL BWP and the second DL BWP.

[0221] Aspect 58: The method of Aspect 57, wherein the set of operating parameters is configured in association with only the first DL BWP and applied to both the first DL BWP and the second DL BWP.

[0222] Aspect 59: The method of Aspect 57, wherein the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0223] Aspect 60: The method of Aspect 40, wherein the one or more BWPs comprise a BWP set including three or more BWPs, the method further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a set identifier (ID) associated with the BWP set.

[0224] Aspect 61: The method of Aspect 60, wherein the BWP set ID is not associated with a BWP ID.

[0225] Aspect 62: The method of Aspect 40, wherein the one or more BWPs comprise a BWP set including three or more BWPs, the method further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP identifier (ID) associated with a BWP of the BWP set.

[0226] Aspect 63: The method of any of Aspects 40-62, the method further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields.

[0227] Aspect 64: The method of Aspect 63, wherein the plurality of BWP fields includes an indication in only one BWP field of the plurality of BWP fields based on the one or more BWPs

comprising a BWP pair, wherein the indication indicates a BWP identifier (ID) associated with the BWP.

[0228] Aspect 65: The method of Aspect 63, wherein the one or more BWPs comprise a BWP set including three or more BWPs, wherein the plurality of BWP fields includes at least three indications, in respective BWP fields of an initial set of BWP fields of the plurality of BWP fields, that indicate respective BWP identifiers (IDs) associated with the three or more BWPs.

[0229] Aspect 66: The method of Aspect 40, wherein the one or more BWPs comprise a single BWP set corresponding to the plurality of resources, wherein the single BWP set includes three or more BWPs, and wherein each BWP of the single BWP set corresponds to: a respective subband of a plurality of subbands, and a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is different from each other of the plurality of center frequencies.

[0230] Aspect 67: The method of Aspect 66, wherein each BWP of the single BWP set corresponds to a respective slot format of a plurality of slot formats.

[0231] Aspect 68: The method of either of Aspects 66 or 67, wherein each BWP of the single BWP set is associated with a single BWP identifier (ID).

[0232] Aspect 69: The method of Aspect 68, wherein the single BWP set comprises two BWPs associated with a communication direction, and wherein each of the two BWPs is associated with a different respective BWP sub-ID.

[0233] Aspect 70: The method of Aspect 69, wherein a first BWP of the two BWPs corresponds to a first set of operating parameters and a second BWP of the two BWPs corresponds to a second set of operating parameters.

[0234] Aspect 71: The method of Aspect 70, wherein the first set of operating parameters at least partially overlaps the second set of operating parameters.

[0235] Aspect 72: The method of Aspect 66, wherein at least two BWPs of the three or more BWPs correspond to different respective BWP identifiers (IDs).

[0236] Aspect 73: The method of Aspect 72, wherein a BWP set ID associated with the single BWP set is indicative of a link between the different respective BWP IDs.

[0237] Aspect 74: The method of Aspect 73, further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID.

[0238] Aspect 75: The method of Aspect 73, further comprising transmitting a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP ID of the different respective BWP IDs.

[0239] Aspect 76: The method of Aspect 66, wherein the single BWP set includes a first DL BWP and a second DL BWP, and wherein a set of operating parameters corresponds to the first DL BWP and the second DL BWP.

[0240] Aspect 77: The method of Aspect 76, wherein the set of operating parameters is configured in association with only the first DL BWP, and applied to both the first DL BWP and the second DL BWP.

[0241] Aspect 78: The method of Aspect 76, wherein the set of operating parameters is configured independently of both of the first DL BWP and the second DL BWP.

[0242] Aspect 79: An apparatus for wireless communication at a device, comprising a processor; memory coupled with the processor; and instructions stored in the memory and executable by the processor to cause the apparatus to perform the method of one or more of Aspects 1-39.

[0243] Aspect 80: A device for wireless communication, comprising a memory and one or more processors coupled to the memory, the one or more processors configured to perform the method of one or more of Aspects 1-39.

[0244] Aspect 81: An apparatus for wireless communication, comprising at least one means for performing the method of one or more of Aspects 1-39.

[0245] Aspect 82: A non-transitory computer-readable medium storing code for wireless communication, the code comprising instructions executable by a processor to perform the method of one or more of Aspects 1-39.

[0246] Aspect 83: A non-transitory computer-readable medium storing a set of instructions for wireless communication, the set of instructions comprising one or more instructions that, when executed by one or more processors of a device, cause the device to perform the method of one or more of Aspects 1-39.

[0247] Aspect 84: An apparatus for wireless communication at a device, comprising a processor; memory coupled with the processor; and instructions stored in the memory and executable by the processor to cause the apparatus to perform the method of one or more of Aspects 40-78.

[0248] Aspect 85: A device for wireless communication, comprising a memory and one or more processors coupled to the memory, the one or more processors configured to perform the method of one or more of Aspects 40-78.

[0249] Aspect 86: An apparatus for wireless communication, comprising at least one means for performing the method of one or more of Aspects 40-78.

[0250] Aspect 87: A non-transitory computer-readable medium storing code for wireless communication, the code comprising instructions executable by a processor to perform the method of one or more of Aspects 40-78.

[0251] Aspect 88: A non-transitory computer-readable medium storing a set of instructions for wireless communication, the set of instructions comprising one or more instructions that, when executed by one or more processors of a device, cause the device to perform the method of one or more of Aspects 40-78.

[0252] The foregoing disclosure provides illustration and description but is not intended to be exhaustive or to limit the aspects to the precise forms disclosed. Modifications and variations may be made in light of the above disclosure or may be acquired from practice of the aspects.

[0253] As used herein, the term "component" is intended to be broadly construed as hardware and/or a combination of hardware and software. "Software" shall be construed broadly to mean instructions, instruction sets, code, code segments, program code, programs, subprograms, software modules, applications, software applications, software packages, routines, subroutines, objects, executables, threads of execution, procedures, and/or functions, among other examples, whether referred to as software, firmware, middleware, microcode, hardware description language, or otherwise. As used herein, a "processor" is implemented in hardware and/or a combination of hardware and software. It will be apparent that systems and/or methods described herein may be implemented in different forms of hardware and/or a combination of hardware and software. The actual specialized control hardware or software code used to implement these systems and/or methods is not limiting of the aspects. Thus, the operation and behavior of the systems and/or methods are described herein without reference to specific software code, since those skilled in the art will understand that software and hardware can be designed to implement the systems and/or methods based, at least in part, on the description herein.

[0254] As used herein, "satisfying a threshold" may, depending on the context, refer to a value being greater than the threshold, greater than or equal to the threshold, less than the threshold, less than or equal to the threshold, equal to the threshold, not equal to the threshold, or the like.

[0255] Even though particular combinations of features are recited in the claims and/or disclosed in the specification, these combinations are not intended to limit the disclosure of various aspects. Many of these features may be combined in ways not specifically recited in the claims and/or disclosed in the specification. The disclosure of various aspects includes each dependent claim in combination with every other claim in the claim set. As used herein, a phrase referring to "at least one of" a list of items refers to any combination of those items, including single members. As an example, "at least one of: a, b, or c" is intended to cover a, b, c, a + b, a + c, b + c, and a + b + c, as well as any combination with multiples of the same element (e.g., a + a, a + a + a, a + a + b, a + a + c, a + b + b, a + c + c, b + b, b + b + b, b + b + c, c + c, and c + c + c, or any other ordering of a, b, and c).

[0256] No element, act, or instruction used herein should be construed as critical or essential unless explicitly described as such. Also, as used herein, the articles "a" and "an" are intended to include one or more items and may be used interchangeably with "one or more." Further, as used herein, the article "the" is intended to include one or more items referenced in connection with the article "the" and may be used interchangeably with "the one or more." Furthermore, as used herein, the terms "set" and "group" are intended to include one or more items and may be used interchangeably with "one or more." Where only one item is intended, the phrase "only one" or similar language is used. Also, as used herein, the terms "has," "have," "having," or the like are intended to be open-ended terms that do not limit an element that they modify (e.g., an element "having" A may also have B). Further, the phrase "based on" is intended to mean "based, at least in part, on" unless explicitly stated otherwise. Also, as used herein, the term "or" is intended to be inclusive when used in a series and may be used interchangeably with "and/or," unless explicitly stated otherwise (e.g., if used in combination with "either" or "only one of").

WHAT IS CLAIMED IS:

1. A user equipment (UE) for wireless communication, comprising:
a memory; and
one or more processors, coupled to the memory, configured to:
receive configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and
communicate based on the configuration information.

2. The UE of claim 1, wherein the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP.

3. The UE of claim 2, wherein a first center frequency associated with the DL BWP is different than a second center frequency associated with the UL BWP.

4. The UE of claim 2, wherein a first BWP identifier (ID) is associated with the DL BWP and a second BWP ID is associated with the UL BWP, wherein the second BWP ID is equal to the first BWP ID or different from the first BWP ID.

5. The UE of claim 1, wherein the one or more BWPs comprise a first plurality of BWPs and a second plurality of BWPs, wherein the first plurality of BWPs is associated with a set of HD resources of the plurality of resources and the second plurality of BWPs is associated with a set of SBFD resources of the plurality of resources.

6. The UE of claim 5, wherein at least one of the first plurality of BWPs or the second plurality of BWPs comprises a bidirectional BWP pair including a DL BWP and a UL BWP.

7. The UE of claim 6, wherein the DL BWP comprises a non-contiguous DL BWP corresponding to a first DL subband and a second DL subband.

8. The UE of claim 5, wherein the second plurality of BWPs comprises a BWP set including three or more BWPs, wherein each BWP of the BWP set corresponds to:

a respective subband of a plurality of subbands, and

a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is identical to each other of the plurality of center frequencies or different from each other of the plurality of center frequencies.

9. The UE of claim 8, wherein the BWP set comprises:

a first BWP associated with a communication direction and a BWP identifier (ID), and

a second BWP associated with the communication direction and the BWP ID, and wherein a first sub-ID is associated with the first BWP and a second sub-ID is associated with the second BWP.

10. The UE of claim 8, wherein at least two BWPs of the three or more BWPs correspond to different respective BWP identifiers (IDs), and wherein a BWP set ID associated with the BWP set is indicative of a link between the different respective BWP IDs.

11. The UE of claim 10, wherein the one or more processors are further configured to receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID or a BWP ID of the different respective BWP IDs.

12. The UE of claim 8, wherein the BWP set includes a first DL BWP and a second DL BWP, and wherein a set of operating parameters corresponds to the first DL BWP and the second DL BWP.

13. The UE of claim 12, wherein the set of operating parameters is configured in association with only the first DL BWP and applied to both the first DL BWP and the second DL BWP.

14. The UE of claim 1, wherein the one or more BWPs comprise a BWP set including three or more BWPs, and wherein the one or more processors are further configured to receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a set identifier (ID) associated with the BWP set.

15. The UE of claim 1, wherein the one or more BWPs comprise a BWP set including three or more BWPs, and wherein the one or more processors are further configured to receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the BWP set, wherein the BWP switch indication comprises a BWP field that indicates a BWP identifier (ID) associated with a BWP of the BWP set.

16. The UE of claim 1, wherein the one or more processors are further configured to receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields, wherein the plurality of BWP fields includes an indication in only one BWP field of the plurality of BWP fields based on the one or more BWPs comprising a BWP pair, wherein the indication indicates a BWP identifier (ID) associated with the BWP.

17. The UE of claim 1, wherein the one or more processors are further configured to receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to a BWP of the one or more BWPs, wherein the BWP switch indication comprises a plurality of BWP fields, wherein the one or more BWPs comprise a BWP set including three or more BWPs, wherein the plurality of BWP fields includes at least three indications, in respective BWP fields of an initial set of BWP fields of the plurality of BWP fields, that indicate respective BWP identifiers (IDs) associated with the three or more BWPs.

18. The UE of claim 1, wherein the one or more BWPs comprise a single BWP set corresponding to the plurality of resources, wherein the single BWP set includes three or more BWPs, and wherein each BWP of the single BWP set corresponds to:

a respective subband of a plurality of subbands, and

a respective center frequency of a plurality of center frequencies, wherein each of the plurality of center frequencies is different from each other of the plurality of center frequencies.

19. The UE of claim 18, wherein each BWP of the single BWP set corresponds to a respective slot format of a plurality of slot formats.

20. The UE of claim 18, wherein each BWP of the single BWP set is associated with a single BWP identifier (ID), wherein the single BWP set comprises two BWPs associated with a communication direction, and wherein each of the two BWPs is associated with a different respective BWP sub-ID.

21. The UE of claim 20, wherein a first BWP of the two BWPs corresponds to a first set of operating parameters and a second BWP of the two BWPs corresponds to a second set of operating parameters, wherein the first set of operating parameters at least partially overlaps the second set of operating parameters.

22. The UE of claim 18, wherein at least two BWPs of the three or more BWPs correspond to different respective BWP identifiers (IDs), and wherein a BWP set ID associated with the single BWP set is indicative of a link between the different respective BWP IDs.

23. The UE of claim 22, wherein the one or more processors are further configured to receive a BWP switch indication that indicates a switch from a prior active one or more BWPs to the single BWP set, wherein the BWP switch indication comprises a BWP field that indicates the BWP set ID or a BWP ID of the different respective BWP IDs.

24. The UE of claim 18, wherein the single BWP set includes a first DL BWP and a second DL BWP, and wherein a set of operating parameters corresponds to the first DL BWP and the second DL BWP.

25. A network node for wireless communication, comprising:
a memory; and
one or more processors, coupled to the memory, configured to:
transmit configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at a user equipment (UE), with the network node and associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and
communicate based on the configuration information.

26. The network node of claim 25, wherein the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP, wherein a first BWP identifier (ID) is associated with the DL BWP and a second BWP ID is associated with the UL BWP, and wherein the second BWP ID is equal to the first BWP ID or different from the first BWP ID.

27. A method of wireless communication performed by an apparatus at a user equipment (UE), comprising:

receiving configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and

communicating based on the configuration information.

28. The method of claim 27, wherein the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP, wherein a first BWP identifier (ID) is associated with the DL BWP and a second BWP ID is associated with the UL BWP, and wherein the second BWP ID is equal to the first BWP ID or different from the first BWP ID.

29. A method of wireless communication performed by an apparatus at a network node, comprising:

transmitting configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at a user equipment (UE), with the network node and associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth parts (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP; and

communicating based on the configuration information.

30. The method of claim 29, wherein the one or more BWPs comprise a single bidirectional BWP pair associated with the plurality of resources, the single bidirectional BWP pair comprising a DL BWP and a UL BWP of the at least one of a DL BWP or a UL BWP, wherein a first BWP identifier (ID) is associated with the DL BWP and a second BWP ID is associated with the UL BWP, and wherein the second BWP ID is equal to the first BWP ID or different from the first BWP ID.

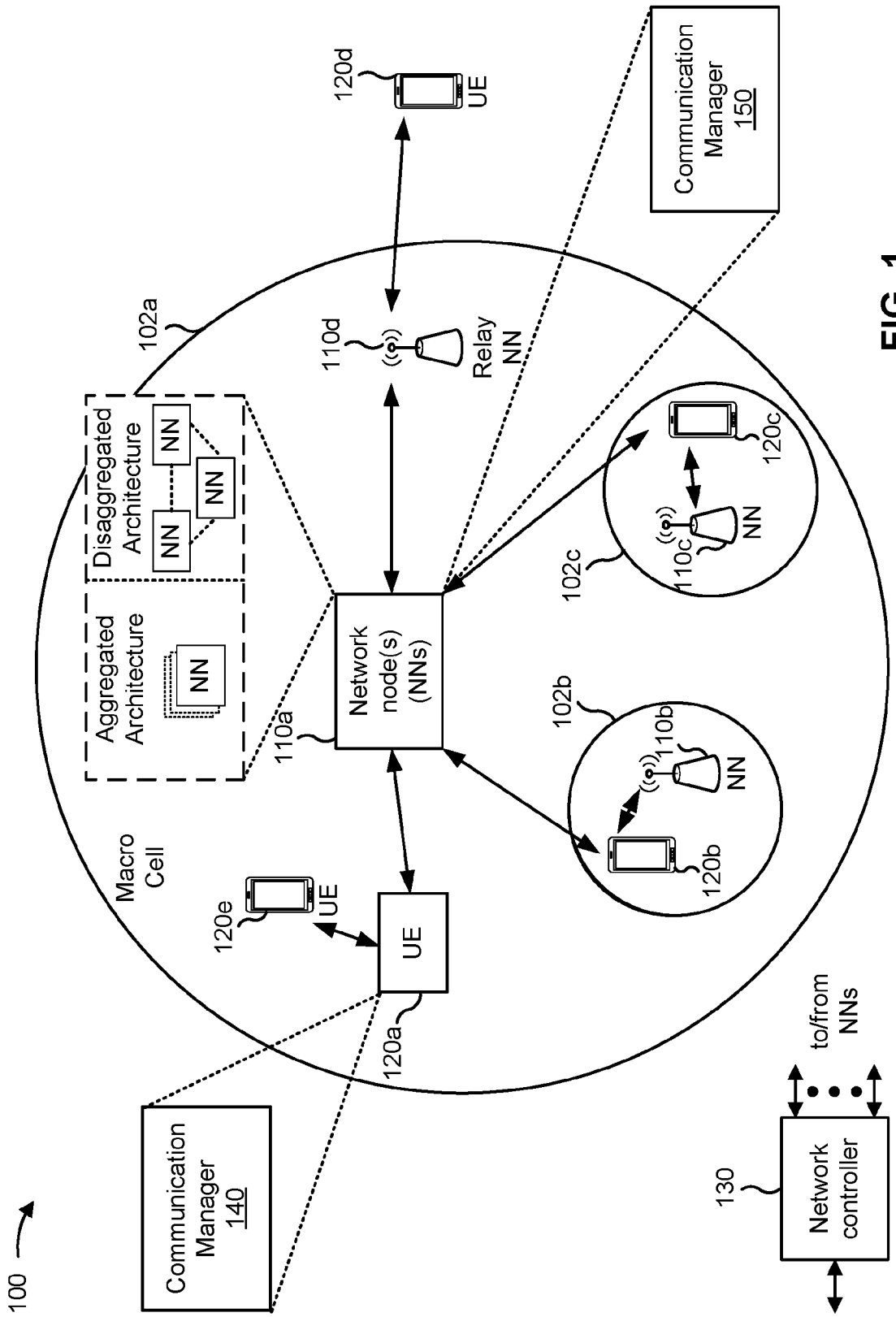
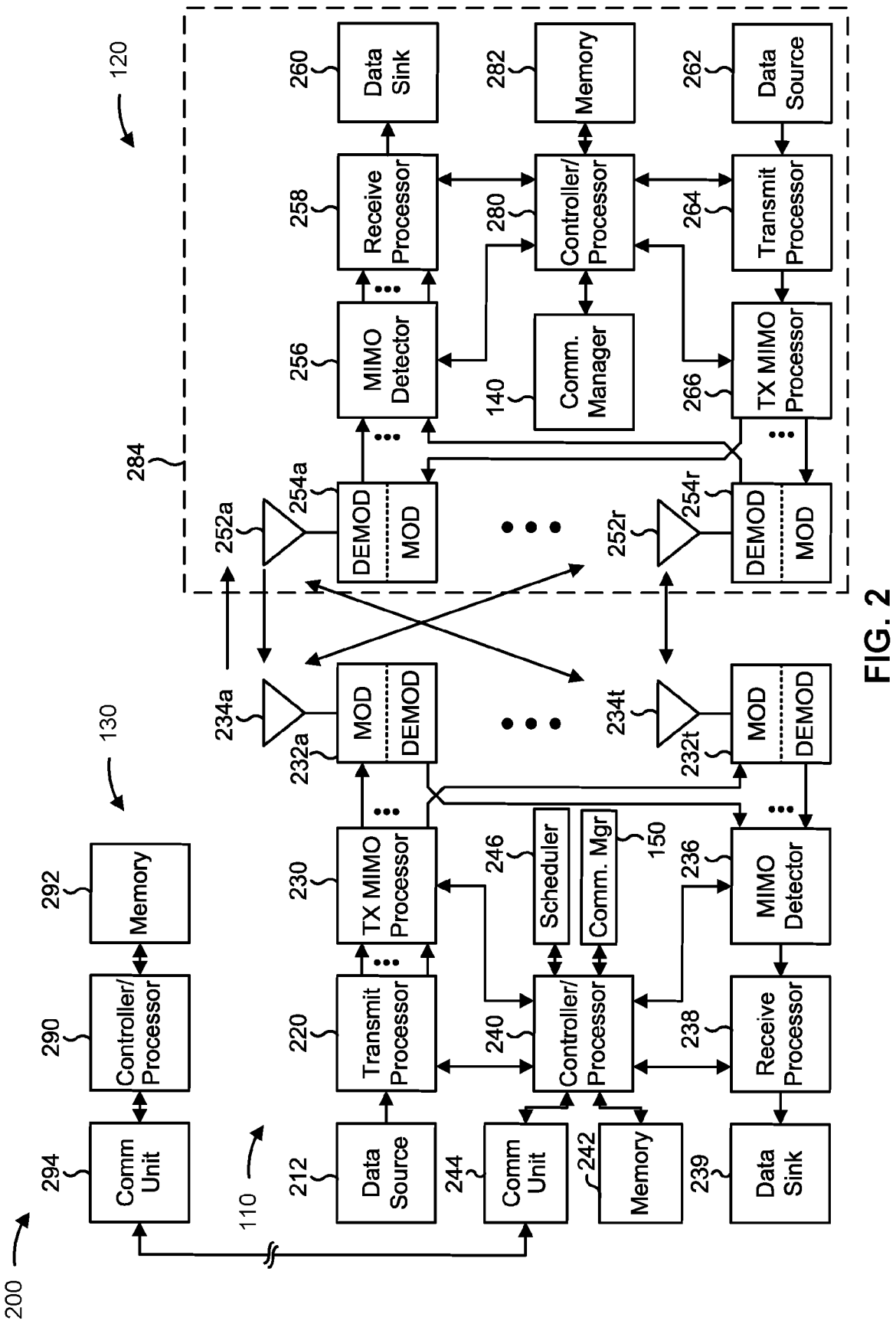

100
Communication Manager 140
Communication Manager 150
Macro Cell
102a
102b
102c
Network node(s) (NNs)
110a
110b
110c
110d
Relay NN
Disaggregated Architecture
Aggregated Architecture
NN
120a
120b
120c
120d
120e
UE
130
Network controller
to/from NNs

FIG. 1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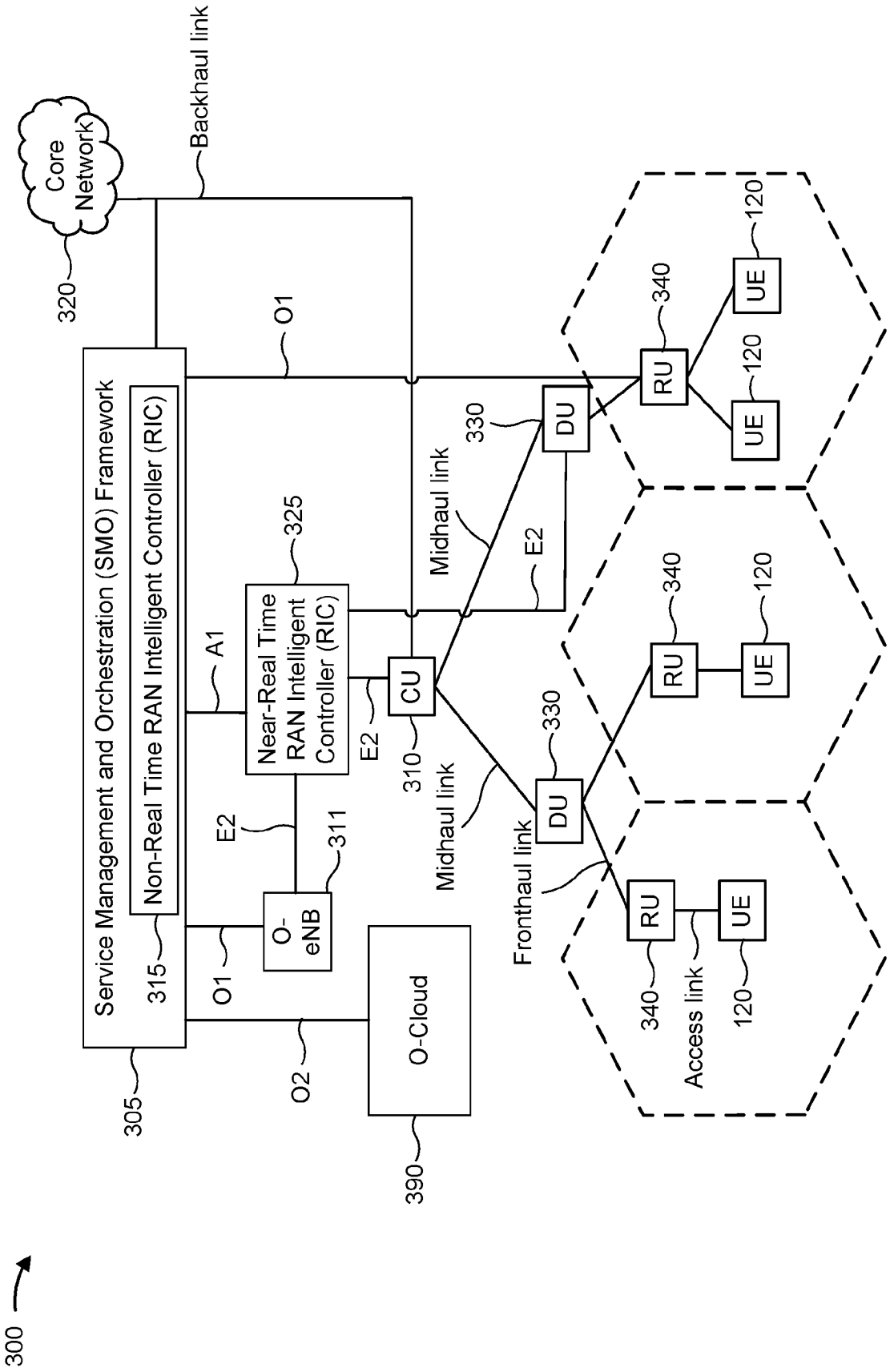
110
120
130
140
150
212
Data Source
220
Transmit Processor
230
TX MIMO Processor
232a
234a
252a
254a
256
MIMO Detector
258
Receive Processor
260
Data Sink
262
Data Source
264
Transmit Processor
266
TX MIMO Processor
280
Controller/ Processor
282
Memory
284
DEMOD
MOD
232t
234t
252r
254r
236
MIMO Detector
238
Receive Processor
239
Data Sink
240
Controller/ Processor
242
Memory
244
Comm Unit
246
Scheduler
Comm. Mgr
Comm. Manager
290
Controller/ Processor
292
Memory
294
Comm Unit

FIG. 2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Core Network
320
Backhaul link
O1
Service Management and Orchestration (SMO) Framework
Non-Real Time RAN Intelligent Controller (RIC)
315
305
A1
Near-Real Time RAN Intelligent Controller (RIC)
325
E2
O-eNB
311
O1
O2
O-Cloud
390
CU
310
E2
Midhaul link
DU
330
Midhaul link
Fronthaul link
RU
340
UE
120
Access link

FIG. 3

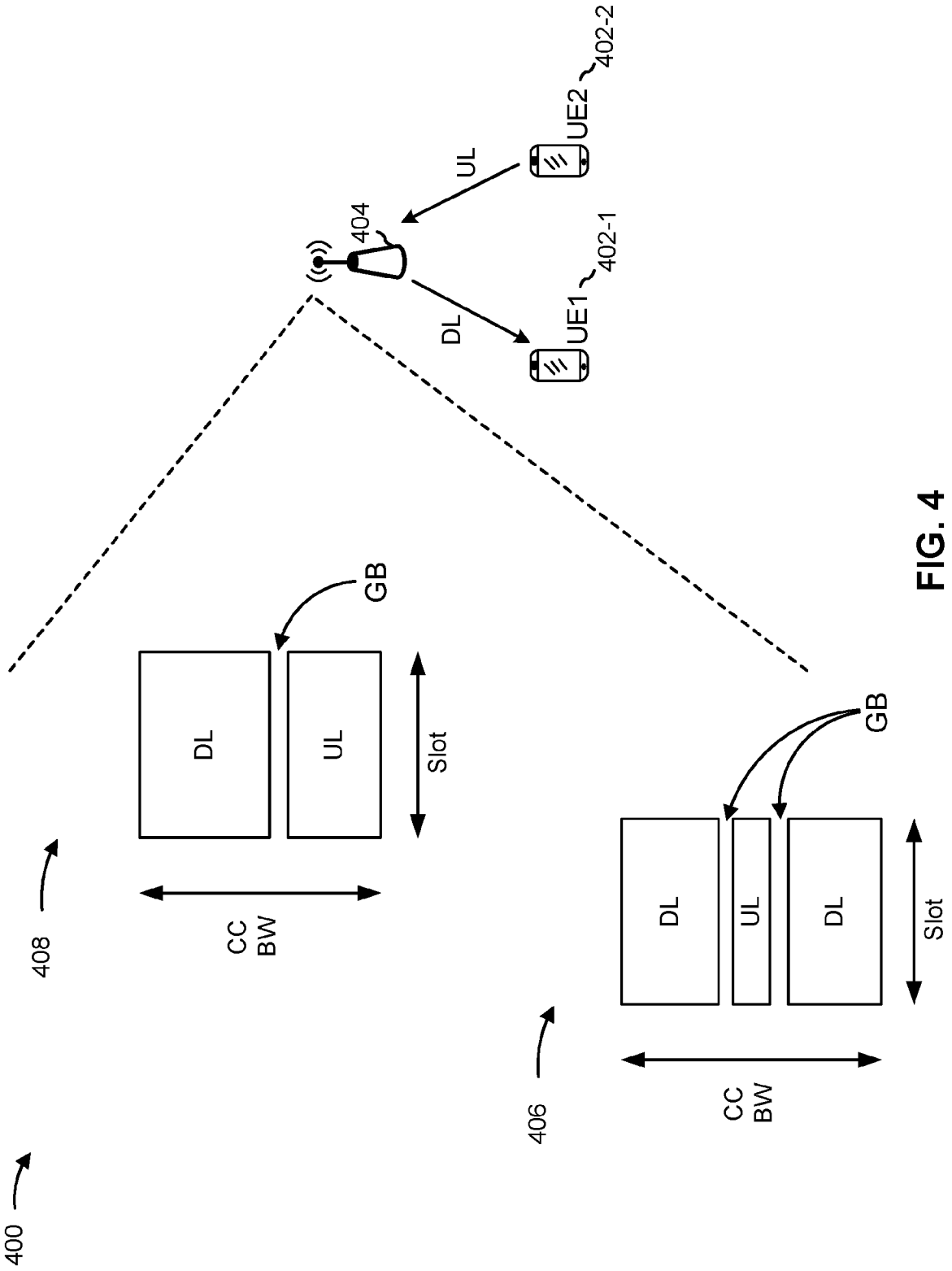
400
408
406
404
UE1
UE2
402-1
402-2
UL
DL
GB
DL
UL
Slot
CC
BW
GB
DL
UL
DL
Slot
CC
BW

FIG. 4

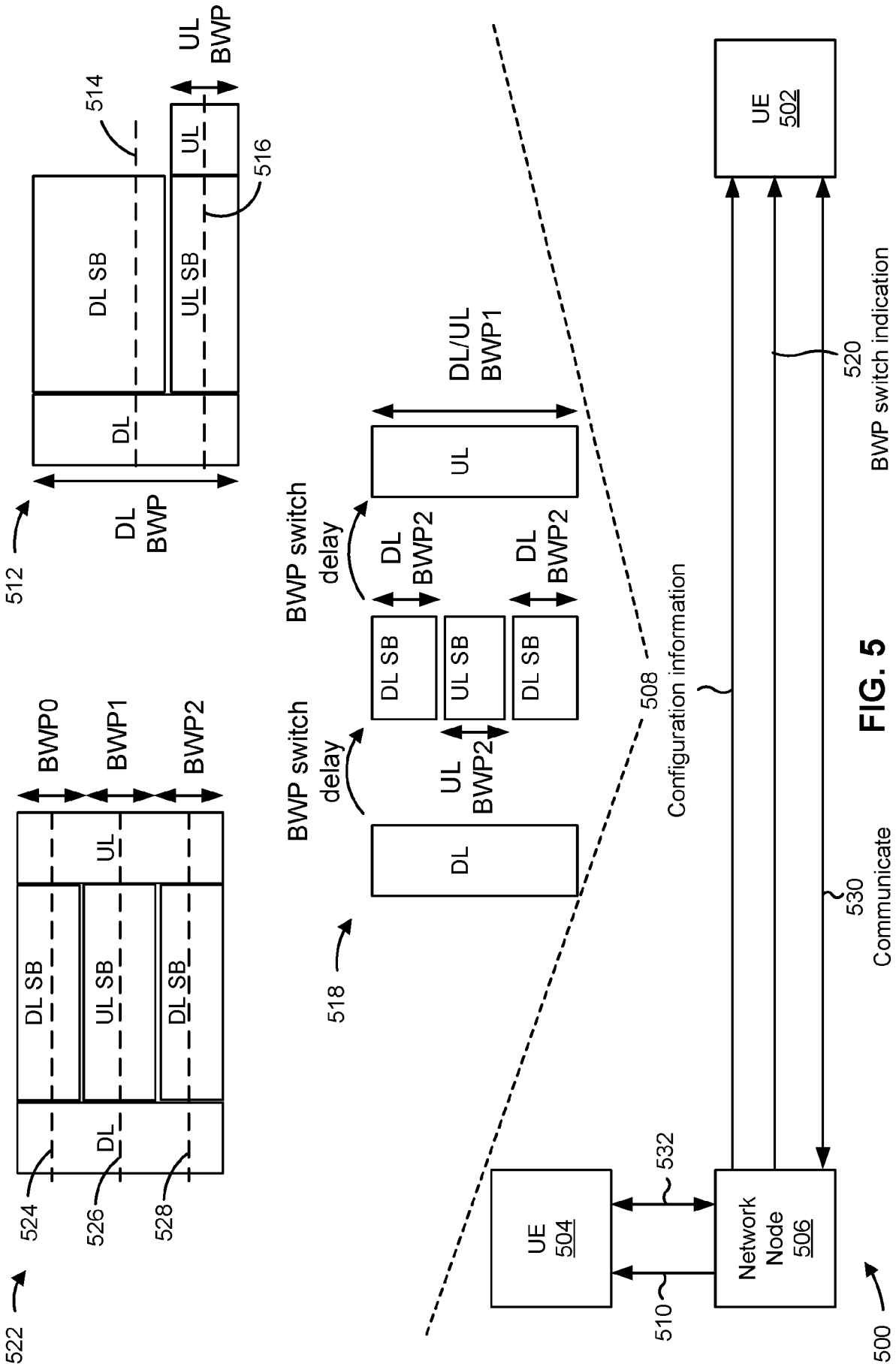
UE 502
UE 504
Network Node 506
500
510
512
514
516
518
520
522
524
526
528
530
532
508
Configuration information
BWP switch indication
Communicate
DL/UL BWP1
DL BWP2
UL BWP2
BWP switch delay
DL SB
UL SB
DL
UL
DL BWP
UL BWP
BWP0
BWP1
BWP2

FIG. 5

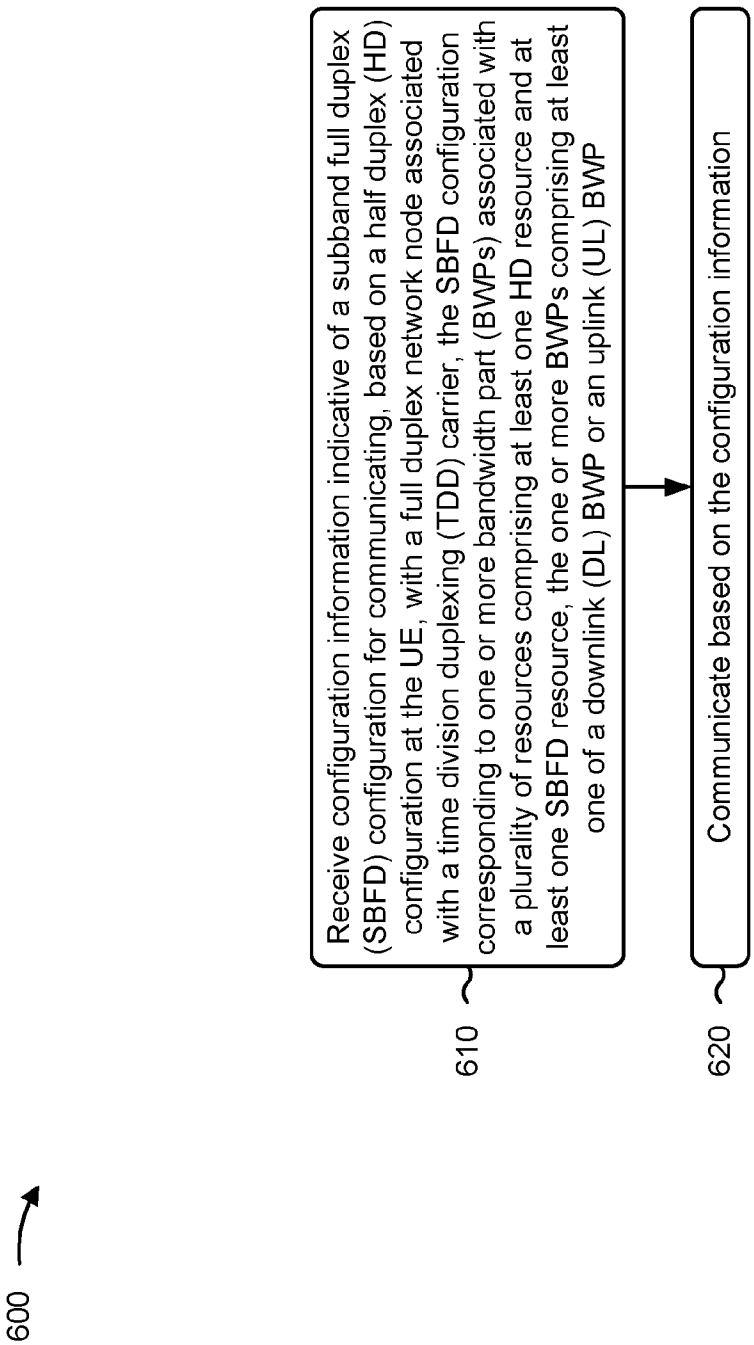
600
610
Receive configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at the UE, with a full duplex network node associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth part (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP
620
Communicate based on the configuration information

FIG. 6

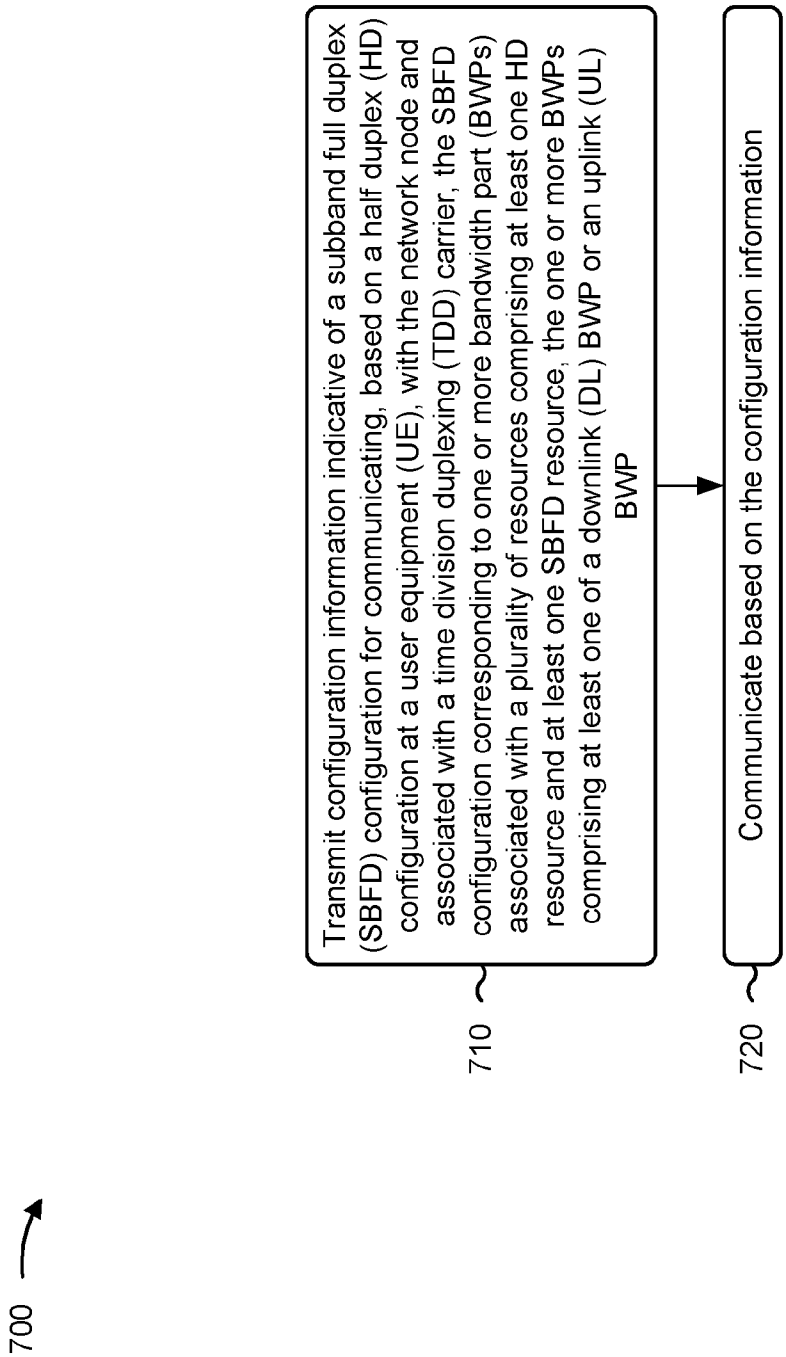
700
710
Transmit configuration information indicative of a subband full duplex (SBFD) configuration for communicating, based on a half duplex (HD) configuration at a user equipment (UE), with the network node and associated with a time division duplexing (TDD) carrier, the SBFD configuration corresponding to one or more bandwidth part (BWPs) associated with a plurality of resources comprising at least one HD resource and at least one SBFD resource, the one or more BWPs comprising at least one of a downlink (DL) BWP or an uplink (UL) BWP
720
Communicate based on the configuration information

FIG. 7

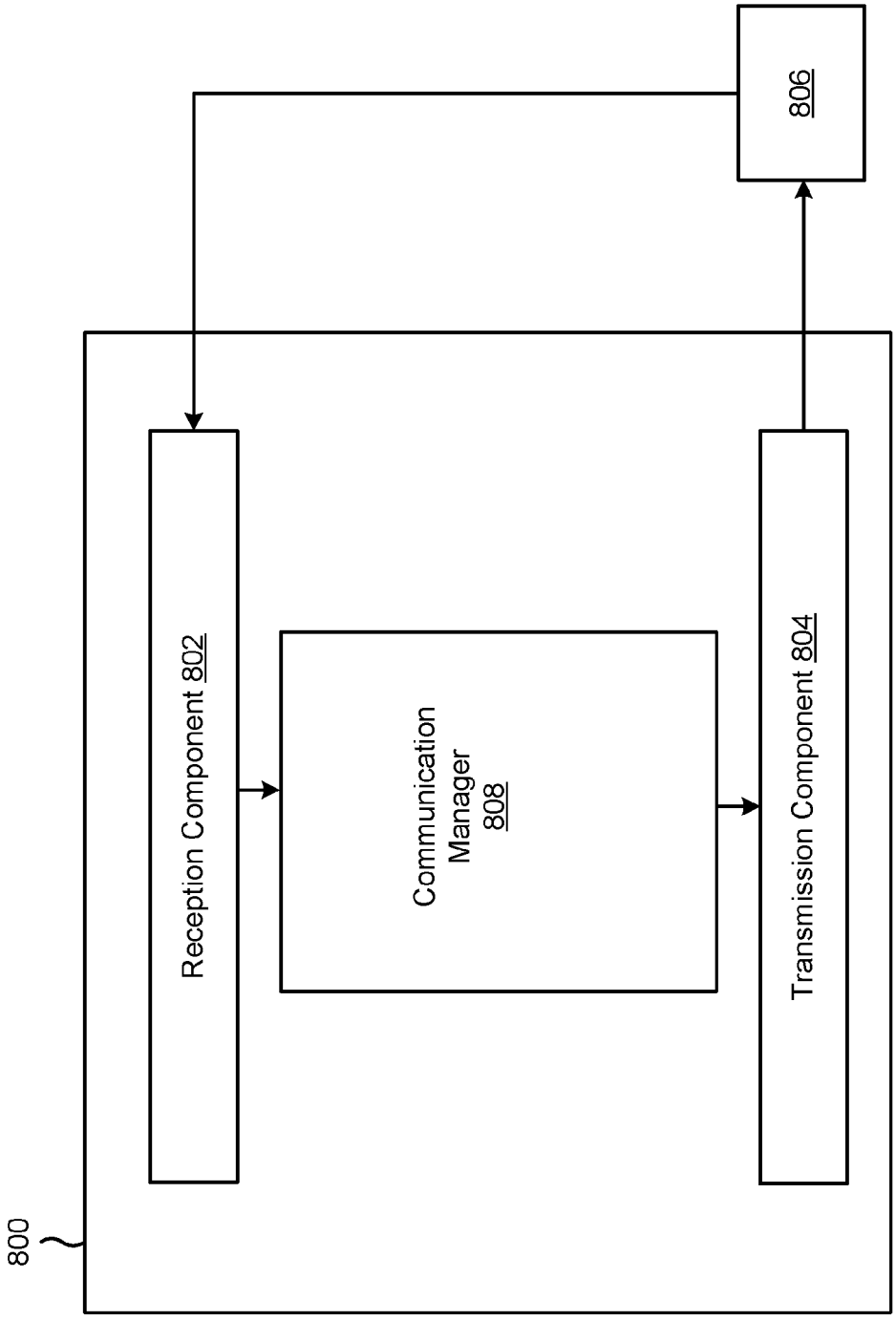
806
Reception Component 802
Communication Manager 808
Transmission Component 804
800

FIG. 8

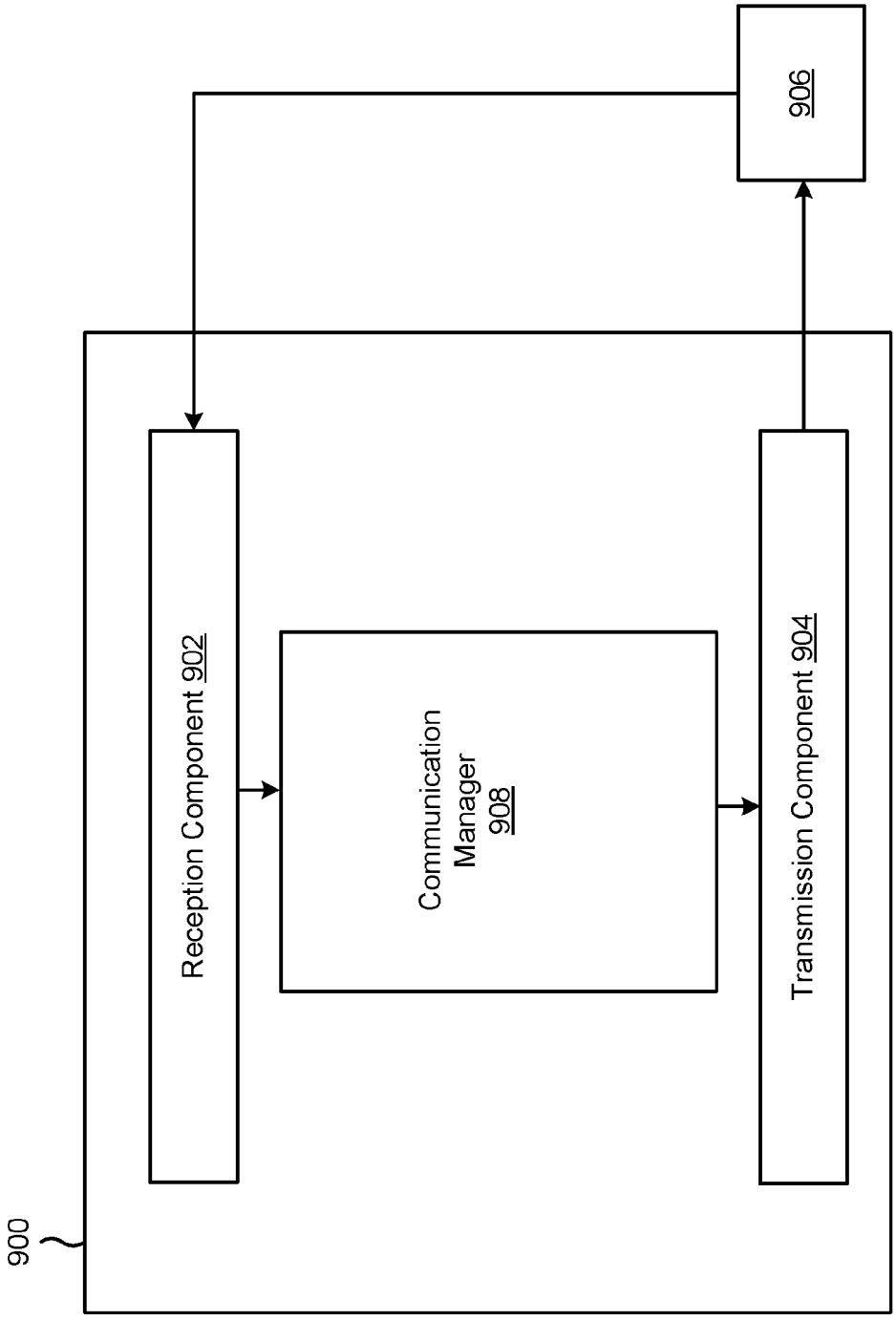
906
Reception Component 902
Communication Manager 908
Transmission Component 904
900

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2023/075215

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L5/00 H04L5/14
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04L H04W

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LG ELECTRONICS: "Study on Subband non-overlapping full duplex", 3GPP DRAFT; R1-2209809, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE , vol. RAN WG1, no. e-Meeting; 20221010 - 20221019 30 September 2022 (2022-09-30), XP052259282, Retrieved from the Internet: URL:https://ftp.3gpp.org/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2209809.zip R1-2209809 LG_DE_SB-FD_final.docx [retrieved on 2022-09-30]	1-9,12, 18,19, 24-30
Y	pages 5-6	14-17
A		10,11,

-/--

[x] Further documents are listed in the continuation of Box C.

[x] See patent family annex.

* Special categories of cited documents :

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"X" document of particular relevance;; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 January 2024	25/01/2024

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Roussos, Fragkiskos

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Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	SAMSUNG: "SBFD feasibility and design considerations for NR duplex evolution", 3GPP DRAFT; R1-2209729, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE , vol. RAN WG1, no. e-Meeting; 20221010 - 20221019 30 September 2022 (2022-09-30), XP052259202, Retrieved from the Internet: URL:https://ftp.3gpp.org/tsg_ran/WG1_RL1/TSGR1_110b-e/Docs/R1-2209729.zip R1-2209729_sbfd_final.docx [retrieved on 2022-09-30] section 5	1,25,27, 29

Y	US 2021/314946 A1 (ANG PETER PUI LOK [US] ET AL) 7 October 2021 (2021-10-07) paragraphs [0085] - [0103]	14-17

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E	WO 2023/184273 A1 (NEC CORP [JP]) 5 October 2023 (2023-10-05) paragraphs [0109] - [0129]	1-7, 24-30

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2023/075215

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WO 2023184273 A1	05-10-2023	NONE	