[5] However, there has been no discussion so far concerning multi-TB scheduling for single DCI-based multi-TRP/Panel transmission and single DCI-based single-TRP and/or Panel transmission which is configured in operation.

[6] There is thus a need for communication apparatuses and methods that can solve the above mentioned issue. Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

SUMMARY

[7] This disclosure presents a~~One~~ non-limiting example which~~and exemplary embodiment~~ facilitates implementation of multi-TB scheduling for single DCI-based multi-TRP/Panel transmission and single DCI-based single-TRP/Panel transmission in operation. It also includes the implementation case that the single-TRP/Panel transmission mode is dynamically or semi-statically switched to the multi-TRP/Panel transmission mode, and vice versa. The decision of switching is made by gNB based on different criterions. For instance, one of the multiple TRPs/Panels is only activated in operation by using either implicit or explicit indication from gNB, such as a transmission configuration indicator (TCI) state.

[8] In one aspect, the techniques disclosed herein provide a communication apparatus. For example, the communication apparatus can be a subscriber UE, which may be a normal (non-RedCap or Rel-15/16/17) UE, a RedCap UE or other similar types of UE. The communication apparatus comprises a receiver, which in operation, receives a single downlink control information (DCI) including scheduling information, the scheduling information indicating radio resources of a plurality of transport blocks (TBs); and circuitry, which in operation, obtains the radio resources of the plurality of TBs based on the scheduling information.

[9] In another aspect, the techniques disclosed herein provide a communication apparatus. For example, the communication apparatus can be a base station or gNodeB (gNB) which comprises circuitry, which in operation, generates a single DCI

including scheduling information, the scheduling information indicating radio resources of a plurality of transport blocks (TBs); and a transmitter, which in operation, transmits the single DCI to a communication apparatus.

[10] In another aspect, the techniques disclosed herein provide a communication method. The communication method comprises receiving a single DCI including scheduling information, the scheduling information indicating radio resources of a plurality of TBs; and obtaining the radio resources for the plurality of TBs based on the scheduling information.

[11] It should be noted that general or specific examples~~embodiments~~ may be implemented as a system, a method, an integrated circuit, a computer program, a storage medium, or any selective combination thereof.

[12] Additional benefits and advantages of the disclosed examples~~embodiments~~ will become apparent from the specification and drawings. The benefits and/or advantages may be individually obtained by the various examples~~embodiments~~ and features of the specification and drawings, which need not all be provided in order to obtain one or more of such benefits and/or advantages.

BRIEF DESCRIPTION OF THE DRAWINGS

[13] Embodiments of the disclosure will be better understood and readily apparent to one of ordinary skilled in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

[14] Fig. 1 shows an exemplary architecture for a 3GPP NR system.

[15] Fig. 2 is a schematic drawing which shows functional split between NG-RAN and 5GC.

[16] Fig. 3 is a sequence diagram for RRC connection setup/reconfiguration procedures.