

CLAIMS

1. A method for processing information, performed by a user equipment (UE), comprising:
transmitting first time interval information of uplink transmission and downlink reception
between the UE and a positioning node to a core network device, wherein the first time interval
5 information is used to determine position information of the UE.
 2. The method according to claim 1, wherein the first time interval information comprises a
first time difference; and
the method further comprises:
determining the first time difference based on a first time instant in a first downlink time
10 unit received from the positioning node and a second time instant in a first uplink time unit
transmitted to the positioning node,
wherein the first downlink time unit is used to receive a first target signal, and the first
uplink time unit is an uplink time unit closest to the first downlink time unit.
 3. The method according to claim 2, wherein the first time interval information further
15 comprises a second time difference; and
the method further comprises:
determining the second time difference, wherein the second time difference is used to
indicate a time difference between a second downlink time unit for receiving a downlink pilot
from the positioning node and a second uplink time unit for transmitting an uplink pilot to the
20 positioning node.
 4. The method according to claim 3, wherein the second time difference is indicated by a
numeric count of sub frames and/or a numeric count of slots; and
wherein, preferably, the downlink pilot comprises a downlink positioning reference signal
(PRS) or a channel state information-reference signal (CSI-RS); and the uplink pilot comprises
25 an uplink sounding reference signal (SRS).
 5. The method according to claim 3 or 4, wherein determining the second time difference
comprises:
determining a target set according to a predefined rule or configuration information
indicated by the core network device; and
30 determining a target value in the target set as the second time difference.
 6. The method according to claim 5, further comprising:

determining whether the predefined rule or the configuration information indicated by the core network device includes indication information; and

in response to the predefined rule or the configuration information comprising the indication information, determining the target value in the target set according to subcarrier
5 spacing information.

7. The method according to any one of claims 2 to 6, further comprising:

receiving indication information of the first downlink time unit transmitted by the positioning node, and/or transmitting indication information of the first uplink time unit to the positioning node,

10 wherein, preferably, after receiving the indication information of the first downlink time unit transmitted by the positioning node, the method further comprises:

transmitting the indication information of the first downlink time unit and the indication information of the first uplink time unit to the core network device.

15 8. The method according to any one of claims 1 to 7, wherein the first time interval information comprises a third time difference; and

the method further comprises:

determining the third time difference based on a first time instant in a first downlink time unit received from the positioning node and a third time instant in a third uplink time unit transmitted to the positioning node,

20 wherein the first downlink time unit is used to receive a first target signal; and the third uplink time unit is a time unit used to transmit a second target signal and closest to the first downlink time unit; and

wherein, preferably, the first target signal comprises a PRS or a CSI-RS; and the second target signal comprises an SRS.

25 9. A method for processing information, performed by a positioning node, comprising:

transmitting second time interval information of downlink transmission and uplink reception between the positioning node and a user equipment (UE) to a core network device, wherein the second time interval information is used to determine position information of the UE.

30 10. The method according to claim 9, wherein the second time interval information comprises a fourth time difference; and

the method further comprises:

determining the fourth time difference based on a fourth time instant in a first downlink time unit transmitted to the UE and a fifth time instant in a first uplink time unit received from the UE,

5 wherein the first uplink time unit is used to receive a second target signal; and the first downlink time unit is a downlink time unit closest to the first uplink time unit;

wherein, preferably, the method further comprises:

transmitting indication information of the first downlink time unit to the UE, and/or receiving indication information of the first uplink time unit transmitted by the UE; and

10 wherein, preferably, after receiving the indication information of the first uplink time unit transmitted by the UE, the method further comprises:

transmitting the indication information of the first downlink time unit and the indication information of the first uplink time unit to the core network device.

11. The method according to claim 10, wherein the second time interval information further
15 comprises a fifth time difference; and

the method further comprises:

determining the fifth time difference, wherein the fifth time difference is used to indicate a time difference between a second downlink time unit for transmitting a downlink pilot to the UE and a second uplink time unit for receiving an uplink pilot from the UE;

20 wherein, preferably, the fifth time difference is indicated by a numeric count of sub frames and/or a numeric count of slots; and

wherein, preferably, the downlink pilot comprises a downlink positioning reference signal (PRS) or a channel state information-reference signal (CSI-RS); and the uplink pilot comprises an uplink sounding reference signal (SRS).

25 12. The method according to claim 11, wherein determining the fifth time difference comprises:

determining a target set according to a predefined rule or configuration information indicated by the core network device; and

determining a target value in the target set as the fifth time difference.

30 13. The method according to claim 12, further comprising:

determining whether the predefined rule or the configuration information indicated by the

core network device includes indication information; and

in response to the predefined rule or the configuration information comprising the indication information, determining the target value in the target set according to subcarrier spacing information.

5 14. The method according to any one of claims 9 to 13, wherein the second time interval information comprises a sixth time difference; and

the method further comprises:

determining the sixth time difference based on a fourth time instant in a first downlink time unit transmitted to the UE and a sixth time instant in a third uplink time unit received from the
10 UE,

wherein the first downlink time unit is used to transmit a first target signal; and the third uplink time unit is a time unit used to receive a second target signal and closest to the first downlink time unit; and

wherein, preferably, the first target signal comprises a PRS or a CSI-RS; and the second
15 target signal comprises an SRS.

15. A method for processing information, performed by a core network device, comprising:

receiving first time interval information transmitted by a user equipment (UE);

receiving second time interval information transmitted by a positioning node; and

determining position information of the UE based on the first time interval information and
20 the second time interval information.

16. The method according to claim 15, wherein the first time interval information comprises at least one of:

a first time difference, wherein the first time difference is determined based on a first time instant in a first downlink time unit received by the UE from the positioning node and a second
25 time instant in a first uplink time unit transmitted by the UE to the positioning node, wherein the first downlink time unit is used to receive a first target signal, and the first uplink time unit is an uplink time unit closest to the first downlink time unit, and wherein preferably, the method further comprises receiving indication information of the first downlink time unit and indication information of the first uplink time unit transmitted by the UE and/or the positioning node;

30 a second time difference, wherein the second time difference is used to indicate a time difference between a second downlink time unit for the UE to receive a downlink pilot and a

second uplink time unit for the UE to transmit an uplink pilot; or

a third time difference, wherein the third time difference is determined based on a first time instant in a first downlink time unit received by the UE from the positioning node and a third time instant in a third uplink time unit transmitted by the UE, wherein the first downlink time unit is used to receive a first target signal; and the third uplink time unit is a time unit used to transmit a second target signal and closest to the first downlink time unit.

17. The method according to claim 15 or 16, wherein the second time interval information comprises at least one of:

a fourth time difference, wherein the fourth time difference is determined based on a fourth time instant in a first downlink time unit transmitted by the positioning node to the UE and a fifth time instant in a first uplink time unit received by the positioning node from the UE, wherein the first uplink time unit is used to receive a second target signal; and the first downlink time unit is a downlink time unit closest to the first uplink time unit;

a fifth time difference, wherein the fifth time difference is used to indicate a time difference between a second downlink time unit for the positioning node to transmit a downlink pilot to the UE and a second uplink time unit for the positioning node to receive an uplink pilot from the UE; or

a sixth time difference, wherein the sixth time difference is determined based on a fourth time instant in a first downlink time unit transmitted by the positioning node to the UE and a sixth time instant in a third uplink time unit received by the positioning node.

18. The method according to claim 16 or 17, further comprising:

indicating configuration information to the UE and/or the positioning node, wherein the configuration information is used to determine a target set; and the second time difference and/or the fifth time difference is a target value in the target set,

wherein, preferably, the configuration information comprises indication information; and the indication information is used to indicate the UE and/or the positioning node to determine the target value in the target set according to subcarrier spacing information.

19. A method for processing information, performed by an information processing system, wherein the information processing system comprises a user equipment (UE), a positioning node, and a core network device, the method comprising:

transmitting, by the UE to the core network device, first time interval information of uplink

transmission and downlink reception between the UE and the positioning node;

transmitting, by the positioning node to the core network device, second time interval information of downlink transmission and uplink reception between the UE and the positioning node; and

5 receiving, by the core network device, the first time interval information and the second time interval information, and determining position information of the UE based on the first time interval information and the second time interval information.

20. A communication device, comprising:

a processor; and

10 a memory storing an executable program executable by the processor,

wherein the processor executes the executable program to perform the method according to any one of claims 1 to 8, or the method according to any one of claims 9 to 14, or the method according to any one of claims 15 to 18.