CLAIMS:

What is claimed is:

1. An apparatus, comprising:

at least one processor; and

at least one memory including computer program code;

in which the at least one memory and the computer program code are configured with the at least one processor to cause the apparatus at least to:

perform a random access procedure in which, upon reception of a preamble transmission on at least one of a secondary component carrier or a secondary cell, a downlink random access response is sent on a primary component carrier or primary cell ~~from a network node to a user equipment indicates a timing advance for a component carrier or cell~~ of a plurality of component carriers or cells,

the random access response indicating a timing advance and identifying ~~or~~ a group of component carriers or cells, to which the timing advance applies; and thereafter

operate a wireless radio on the identified ~~indicated one or~~ group of component carriers or cells synchronous with the timing advance.

2. The apparatus according to claim 1, in which

the downlink random access response further indicates an uplink resource granted to ~~the~~ a user equipment, and

the at least one memory and the computer program code are configured with the at least one processor to cause the apparatus to operate the wireless radio to send or receive using the uplink resource on the identified ~~component carrier or cell or~~ group of component carriers or cells to which the timing advance is applied.

~~3. The apparatus according to claim 2, in which the random access response further indicates by an index the component carrier or cell the uplink resource is on.~~

43. The apparatus according to claim 1, in which the random access response further identifies the group of component carriers or cells by a single bit indicating a timing advance group,
in which the timing advance applies to all component carriers or cells within the group.

54. The apparatus according to claim 1, in which the random access response further identifies the ~~component carrier or cell or~~ group of component carriers or cells by an index, and the random access response further comprises a flag bit which indicates that the index is included in the random access response.

65. The apparatus according to claim 1, in which the random access response further identifies the ~~component carrier or cell or~~ group of component carriers or cells by an index and a format of whether the random access response includes the index is identified by one of: radio resource signaling between ~~the~~ a network node and ~~the~~ a user equipment; and implicitly from a random access channel and cross carrier scheduling being configured.

76. The apparatus according to any one of claims 1 through 65, in which the apparatus comprises the network node or one or more components therefore.

87. The apparatus according to claim 76, in which the random access response comprises a first random access response and the at least one memory and the computer program code are configured with the at least one processor to cause the apparatus at least further to:

schedule the first and other random access responses on a primary component carrier or primary cell of the plurality of component carriers or cells, regardless of which ~~component carrier or cell or~~ group of component carriers or cells the timing advance of the first and other random access responses applies.

98. The apparatus according to claim 76, in which the random access response comprises a first random access response and the at least one memory and the computer

program code are configured with the at least one processor to cause the apparatus at least further to:

send to ~~the~~ a user equipment ~~and to other user equipments~~ a medium access control protocol data unit comprising a plurality of random access responses, in which the first random access response is disposed within the protocol data unit following all other random access responses which lack an explicit indication identifying the ~~component carrier or cell or~~ group of component carriers or cells to which their respective timing advance applies.

~~10. The apparatus according to any one of claims 1 through 6, in which the apparatus comprises the user equipment or one or more components therefore.~~

~~11~~9. A method, comprising:

performing a random access procedure in which, upon reception of a preamble transmission on at least one of a secondary component carrier or a secondary cell, a downlink random access response is sent on a primary component carrier or primary cell ~~from a network node to a user equipment indicates at least a timing advance for a component carrier or cell~~ of a plurality of component carriers or cells,

the random access response indicating a timing advance and identifying ~~or~~ a group of component carriers or cells, to which the timing advance applies; and thereafter

operating a wireless radio on the ~~indicated~~ identified ~~one or~~ group of component carriers or cells synchronous with the timing advance.

~~12. The method according to claim 11, in which:~~

~~the downlink random access response further indicates an uplink resource granted to the user equipment, and~~

~~operating the wireless radio comprises sending or receiving using the uplink resource on the component carrier or cell or group of component carriers or cells to which the timing advance is applied.~~

~~13. The method according to claim 12, in which the random access response further indicates by an index the component carrier or cell the uplink resource is on.~~

~~14. The method according to claim 11, in which the random access response further identifies the group of component carriers or cells by a single bit indicating a timing advance group;~~
~~in which the timing advance applies to all component carriers or cells within the group.~~

~~15. The method according to claim 11, in which the random access response further identifies the component carrier or cell or group of component carriers or cells by an index, and the random access response further comprises a flag bit which indicates that the index is included in the random access response.~~

~~16. The method according to claim 11, in which the random access response further identifies the component carrier or cell or group of component carriers or cells by an index and a format of whether the random access response includes the index is identified by one of: radio resource signaling between the network node and the user equipment; and implicitly from a random access channel and cross carrier scheduling being configured.~~

~~17~~10. The method according to ~~any one of~~ claims ~~11 through 16~~9, executed by ~~the~~ a network node or one or more components therefore, and in which the random access response comprises a first random access response;
the method further comprising:
scheduling the first and other random access responses on a primary component carrier or primary cell of the plurality of component carriers or cells, regardless of which ~~component carrier or cell or~~ group of component carriers or cells the timing advance of the first and other random access responses applies.

~~18~~11. The method according to ~~any one of~~ claims ~~11 through 16~~9, executed by ~~the~~ a network node ~~or one~~ or ~~more~~ plural components therefore, and in which the random access response comprises a first random access response;

the method further comprising:

sending to ~~the~~ a user equipment ~~and to other user equipments~~ a medium access control protocol data unit comprising a plurality of random access responses, in which the first random access response is disposed within the protocol data unit following all other random access responses which lack an explicit indication identifying the ~~component carrier or cell or~~ group of component carriers or cells to which their respective timing advance applies.

~~19. The method according to any one of claims 11 through 16, in which the user equipment is explicitly configured by the network node for a format of the downlink random access response via radio resource control signaling.~~

~~20~~12. A computer program product embodied on a non-transitory readable memory storing a program of computer readable instructions that when executed by a processor result in actions comprising:

performing a random access procedure in which, upon reception of a preamble transmission on at least one of a secondary component carrier or a secondary cell, a downlink random access response is sent on a primary component carrier or primary cell ~~from a network node to a user equipment indicates at least a timing advance for a component carrier or cell~~ of a plurality of component carriers or cells,

the random access response indicating a timing advance and identifying ~~or~~ a group of component carriers or cells, to which the timing advance applies; and thereafter

operating a wireless radio on the ~~indicated one or~~ identified group of component carriers or cells synchronous with the timing advance.

~~21. The computer readable memory according to claim 20, in which~~

~~the downlink random access response further indicates an uplink resource granted to the user equipment, and~~

~~operating the wireless radio comprises using the wireless radio to send or receive on the uplink resource on the component carrier or cell or group of component carriers or cells to which the timing advance is applied.~~

~~22. The computer readable memory according to claim 20, in which the random access response comprises a first random access response and the actions further comprise:~~

~~scheduling the first and other random access responses on a primary component carrier or primary cell of the plurality of component carriers or cells, regardless of which component carrier or cell or group of component carriers or cells the timing advance of the first and other random access responses applies.~~

13. An apparatus comprising:

at least one processor; and

at least one memory including computer program code;

in which the at least one memory and the computer program code are configured with the at least one processor to cause the apparatus at least to:

perform a random access procedure in which a random access preamble is sent on at least one of a plurality of component carriers or cells;

receiving a random access response on a primary components carrier or primary cell of the plurality of component carriers or cells,

the random access response indicating a timing advance and identifying a group of component carriers or cells, to which the timing advance applies; and

operating a wireless radio on the identified group of component carriers or cells synchronous with the timing advance.

14. A method comprising:

performing a random access procedure in which a random access preamble is sent on at least one of a plurality of component carriers or cells;

receiving a random access response on a primary component carrier or primary cell of the plurality of component carriers or cells,

the random access response indicating a timing advance and identifying a group of component carriers or cells, to which the timing advance applies; and

operating a wireless radio on the identified group of component carriers or cells synchronous with the timing advance.

15. A computer program product embodied on a non-transitory readable memory storing a program of computer readable instructions that when executed by a processor result in actions comprising:

performing a random access procedure in which a random access preamble is sent on at least one of a plurality of component carriers or cells;

receiving a random access response on a primary component carrier or primary cell of the plurality of component carriers or cells,

the random access response indicating a timing advance and identifying a group of component carriers or cells, to which the timing advance applies and

operating a wireless radio on the identified group of component carriers or cells synchronous with the timing advance.