CLAIMS:

1. A method of ~~efficient~~ signalizing of picture size and partitioning information in a video bitstream, the method being performed by at least one processor, and the method comprising:

obtaining, from a sequence parameter set (SPS) to which a coded picture refers, a flag indicating whether the picture size and partitioning information of the coded picture is included in the SPS;

determining whether the obtained flag indicates that the picture size and partitioning information is included in the SPS;

based on the flag being determined to indicate that the picture size and partitioning information is included in the SPS, obtaining, from the SPS, the picture size and partitioning information; and

based on the flag being determined to indicate that the picture size and partitioning information is not included in the SPS, obtaining, from a video parameter set (VPS), the picture size and partitioning information that is included in the VPS.

2. The method of claim 1, further comprising:

obtaining, from the SPS, a number of picture size and partitioning information included in the SPS; ~~and~~

determining whether an index is less than or equal to the obtained number of picture size and partitioning information included in the SPS; and

based on the index being determined to be less than or equal to the number of picture size and partitioning information included in the SPS, incrementing the index.

3. The method of claim 2, further comprising:

~~based on the index being determined to be less than or equal to the number of picture size and partitioning information included in the SPS, incrementing the index;~~

obtaining, from the SPS, another flag indicating whether additional picture size and partitioning information is included in the SPS, the other flag corresponding to the incremented index;

determining whether the obtained other flag indicates that the additional picture size and partitioning information is included in the SPS;

based on the other flag being determined to indicate that the additional picture size and partitioning information is included in the SPS, obtaining, from the SPS, the additional picture size and partitioning information; and

based on the other flag being determined to indicate that the additional picture size and partitioning information is not included in the SPS, obtaining, from the VPS, the additional picture size and partitioning information that is included in the VPS.

4. The method of claim 1, further comprising:

obtaining, from a picture parameter set (PPS) to which the coded picture refers, an index indicating that the picture size and partitioning information is included in the SPS; and

based on the index being obtained, obtaining, from the SPS, the picture size and partitioning information.

5. The method of claim 1, further comprising:

obtaining, from a picture parameter set (PPS) to which the coded picture refers, another flag indicating whether the picture size and partitioning information is updated in the PPS;

determining whether the obtained other flag indicates that the picture size and partitioning information is updated in the PPS; and

based on the obtained other flag being determined to indicate that the picture size and partitioning information is updated in the PPS, obtaining, from the PPS, the updated picture size and partitioning information.

6. The method of claim 5, wherein the updated picture size and partitioning information comprises any one or any combination of conformance window offsets of the coded picture, tile brick partitioning information of the coded picture, rectangular slice partitioning information of the coded picture, sub-picture partitioning information of the coded picture and sub-picture conformance window offsets of the coded picture that are updated.

7. The method of claim 1, wherein the picture size and partitioning information comprises any one or any combination of conformance window offsets of the coded picture, tile brick partitioning information of the coded picture, rectangular slice partitioning information of

the coded picture, sub-picture partitioning information of the coded picture and sub-picture conformance window offsets of the coded picture.

8. An apparatus for ~~efficient~~ signalizing of picture size and partitioning information in a video bitstream, the apparatus comprising:

at least one memory configured to store computer program code; and

at least one processor configured to access the at least one memory and operate according to the computer program code, the computer program code comprising:

first obtaining code configured to cause the at least one processor to obtain, from a sequence parameter set (SPS) to which a coded picture refers, a flag indicating whether the picture size and partitioning information of the coded picture is included in the SPS;

first determining code configured to cause the at least one processor to determine whether the obtained flag indicates that the picture size and partitioning information is included in the SPS;

second obtaining code configured to cause the at least one processor to, based on the flag being determined to indicate that the picture size and partitioning information is included in the SPS, obtain, from the SPS, the picture size and partitioning information; and

third obtaining code configured to cause the at least one processor to, based on the flag being determined to indicate that the picture size and partitioning information is not included in the SPS, obtain, from a video parameter set (VPS), the picture size and partitioning information that is included in the VPS.

9. The apparatus of claim 8, further comprising:

fourth obtaining code configured to cause the at least one processor to obtain, from the SPS, a number of picture size and partitioning information included in the SPS; ~~and~~

second determining code configured to cause the at least one processor to determine whether an index is less than or equal to the obtained number of picture size and partitioning information included in the SPS; and

incrementing code configured to cause the at least one processor to, based on the index being determined to be less than or equal to the number of picture size and partitioning information included in the SPS, increment the index.

10. The apparatus of claim 9, ~~further comprising incrementing code configured to cause the at least one processor to, based on the index being determined to be less than or equal to the number of picture size and partitioning information included in the SPS, increment the index,~~

wherein the first obtaining code is further configured to cause the at least one processor to obtain, from the SPS, another flag indicating whether additional picture size and partitioning information is included in the SPS, the other flag corresponding to the incremented index,

the first determining code is further configured to cause the at least one processor to determine whether the obtained other flag indicates that the additional picture size and partitioning information is included in the SPS,

the second obtaining code is further configured to cause the at least one processor to, based on the other flag being determined to indicate that the additional picture size and partitioning information is included in the SPS, obtain, from the SPS, the additional picture size and partitioning information, and

the third obtaining code is further configured to cause the at least one processor to, based on the other flag being determined to indicate that the additional picture size and partitioning information is not included in the SPS, obtain, from the VPS, the additional picture size and partitioning information that is included in the VPS.

11. The apparatus of claim 8, further comprising:

fourth obtaining code configured to cause the at least one processor to obtain, from a picture parameter set (PPS) to which the coded picture refers, an index indicating that the picture size and partitioning information is included in the SPS; and

fifth obtaining code configured to cause the at least one processor to, based on the index being obtained, obtain, from the SPS, the picture size and partitioning information.

12. The apparatus of claim 8, further comprising:

fourth obtaining code configured to cause the at least one processor to obtain, from a picture parameter set (PPS) to which the coded picture refers, another flag indicating whether the picture size and partitioning information is updated in the PPS;

second determining code configured to cause the at least one processor to determine whether the obtained other flag indicates that the picture size and partitioning information is updated in the PPS; and

fifth obtaining code configured to cause the at least one processor to, based on the obtained other flag being determined to indicate that the picture size and partitioning information is updated in the PPS, obtain, from the PPS, the updated picture size and partitioning information.

13. The apparatus of claim 12, wherein the updated picture size and partitioning information comprises any one or any combination of conformance window offsets of the coded picture, tile brick partitioning information of the coded picture, rectangular slice partitioning information of the coded picture, sub-picture partitioning information of the coded picture and sub-picture conformance window offsets of the coded picture that are updated.

14. The apparatus of claim 8, wherein the picture size and partitioning information comprises any one or any combination of conformance window offsets of the coded picture, tile brick partitioning information of the coded picture, rectangular slice partitioning information of the coded picture, sub-picture partitioning information of the coded picture and sub-picture conformance window offsets of the coded picture.

15. A non-transitory computer-readable storage medium storing instructions that cause at least one processor to:

obtain, from a sequence parameter set (SPS) to which a coded picture refers, a flag indicating whether ~~the~~ picture size and partitioning information of the coded picture is included in the SPS;

determine whether the obtained flag indicates that the picture size and partitioning information is included in the SPS;

based on the flag being determined to indicate that the picture size and partitioning information is included in the SPS, obtain, from the SPS, the picture size and partitioning information; and

based on the flag being determined to indicate that the picture size and partitioning information is not included in the SPS, obtain, from a video parameter set (VPS), the picture size and partitioning information that is included in the VPS.

16. The non-transitory computer-readable storage medium of claim 15, wherein the instructions further cause the at least one processor to:

obtain, from the SPS, a number of picture size and partitioning information included in the SPS; ~~and~~

determine whether an index is less than or equal to the obtained number of picture size and partitioning information included in the SPS; and

based on the index being determined to be less than or equal to the number of picture size and partitioning information included in the SPS, increment the index.

17. The non-transitory computer-readable storage medium of claim 16, wherein the instructions further cause the at least one processor to:

~~based on the index being determined to be less than or equal to the number of picture size and partitioning information included in the SPS, increment the index;~~

obtain, from the SPS, another flag indicating whether additional picture size and partitioning information is included in the SPS, the other flag corresponding to the incremented index;

determine whether the obtained other flag indicates that the additional picture size and partitioning information is included in the SPS;

based on the other flag being determined to indicate that the additional picture size and partitioning information is included in the SPS, obtain, from the SPS, the additional picture size and partitioning information; and

based on the other flag being determined to indicate that the additional picture size and partitioning information is not included in the SPS, obtain, from the VPS, the additional picture size and partitioning information that is included in the VPS.

18. The non-transitory computer-readable storage medium of claim 15, wherein the instructions further cause the at least one processor to:

obtain, from a picture parameter set (PPS) to which the coded picture refers, an index indicating that the picture size and partitioning information is included in the SPS; and

based on the index being obtained, obtain, from the SPS, the picture size and partitioning information.

19. The non-transitory computer-readable storage medium of claim 15, wherein the instructions further cause the at least one processor to:

obtain, from a picture parameter set (PPS) to which the coded picture refers, another flag indicating whether the picture size and partitioning information is updated in the PPS;

determine whether the obtained other flag indicates that the picture size and partitioning information is updated in the PPS; and

based on the obtained other flag being determined to indicate that the picture size and partitioning information is updated in the PPS, obtain, from the PPS, the updated picture size and partitioning information.

20. The non-transitory computer-readable storage medium of claim 15, wherein the picture size and partitioning information comprises any one or any combination of conformance window offsets of the coded picture, tile brick partitioning information of the coded picture, rectangular slice partitioning information of the coded picture, sub-picture partitioning information of the coded picture and sub-picture conformance window offsets of the coded picture.