CLAIMS

1. A computer program product for facilitating processing within a computing environment (100), the computer program product comprising:

a computer readable storage medium (14, 104, 202) readable by a processing circuit (102, 204) and storing instructions (300) for performing a method comprising:

obtaining an instruction (300) to perform one or more operations using an input value, the instruction (300) being a single architected instruction (300), and the instruction (300) comprising a negative zero control indicator (544) indicating whether negative zero control is enabled for execution of the instruction (300), wherein enabling or disabling of the negative zero control results in control of a sign of an output zero value; and

executing the instruction (300), the executing comprising:

performing the one or more operations using the input value to obtain a result~~, wherein the one of more operations comprises obtaining a portion of the input value to move into a location as an output of execution of the instruction, the portion of the input value~~ comprising ~~numerical values and a sign associated with those numerical values, wherein the result comprises the obtained portion of the input value, in which the~~ a sign ~~of the obtained portion of the input value is a sign of the result; ~~;

determining whether to control the sign of the result, the determining being based at least in part on the negative zero control indicator ~~being set to a defined value, wherein the determining whether to control the sign of the result determines whether to control output of the sign of the portion of the input value, as provided in the result, in the output of the execution of the instruction; and~~ (544) being set to a defined value; and

performing further processing, as part the executing the instruction (300), based on the determining, wherein the further processing forces a positive sign on the zero value, or allows the zero result to be output with a negative sign.

2. The computer program product of claim 1, wherein the negative zero control indicator (544) being set to the defined value indicates that the negative zero control is enabled for execution of the instruction, wherein the result of the performing the one or more operations is a numerical ~~zero~~ value zero having the sign ~~provided in the result~~, wherein the determining determines, based on the negative zero control being enabled for execution of the instruction, not to control the sign of the numerical ~~zero~~ value zero, and wherein the further processing comprises producing ~~the~~an output of execution of the instruction, the output comprising the numerical ~~zero~~ value zero having the sign.

3. The computer program product of claim 1, wherein the negative zero control indicator (544) being set to another value, different from the defined value, indicates that the negative zero control is not enabled for execution of the instruction, wherein the result of the performing the one or more operations is a numerical ~~zero~~ value zero having the sign ~~provided in the result~~, wherein the determining determines, based on the negative zero control not being enabled, to force the sign of the numerical ~~zero~~ value zero to be positive, and wherein the further processing comprises producing ~~the~~an output of execution of the instruction, the producing comprising forcing the sign of the numerical ~~zero~~ value zero to be positive, wherein the output comprises the numerical ~~zero~~ value zero having the forced positive sign.

4. The computer program product of claim 3, wherein the ~~sign of~~performing the ~~obtained portion of the input value to move into the location is negative, and therefore~~one or more operations comprises setting the sign of the result ~~is~~to be negative, and wherein the forcing inverts the sign of the result to be positive.

5. The computer program product of claim 3, wherein the ~~sign of~~performing the ~~obtained portion of the input value to move into the location is positive, and therefore~~one or more operations comprises setting the sign of the result ~~is~~to be positive, and wherein the forcing makes no change to the positive sign ~~of the result~~ and outputs the result with the positive sign.

6. The computer program product of claim 1, wherein the executing further comprises determining whether the result has a zero magnitude, wherein the determining whether to control the sign of the result and the performing further processing are performed based on determining that the result has a zero magnitude.

7. The computer program product of claim 1, wherein the determining whether to control the sign of the result is further based on a selected mode for execution of the instruction (300).

8. The computer program product of claim 7, wherein the selected mode comprises a selected sign operation of the instruction (300), the selected sign operation being selected by a field (304,508) of the instruction (300).

9. The computer program product of claim 1, wherein the input value is a binary coded decimal number, and wherein an output of the further processing and the executing is a negative zero value in binary coded decimal format.

10. The computer program product of claim 1, wherein the negative zero control indicator (544) is located in a field (304, 508) of the instruction (300).

11. A computer system for facilitating processing within a computing environment (100), the computer system comprising:

a memory ~~storing instructions;~~(14, 104, 202); and

a processor (12, 102, 204) coupled to the memory ~~and configured to execute the instructions,~~(14, 104, 202), wherein the computer system is configured to perform a method ~~based on execution of the instructions by the processor, the method~~ comprising:

obtaining an instruction~~, of the instructions,~~ (300) to perform one or more operations using an input value, the instruction (300) being a single architected instruction (300), and the instruction (300) comprising a negative zero control indicator (544) indicating whether negative zero control is enabled for execution of the

instruction~~; and~~ (300), wherein enabling or disabling of the negative zero control results in control of a sign of an output zero value; and

executing the instruction (300), the executing comprising:

performing the one or more operations using the input value to obtain a result~~, wherein the one or more operations comprises obtaining a portion of the input value to move into a location as an output of execution of the instruction, the portion of the input value~~ comprising ~~numerical values and a sign associated with those numerical values, wherein the result comprises the obtained portion of the input value, in which the~~ a sign ~~of the obtained portion of the input value is a sign of the result~~;

determining whether to control the sign of the result, the determining being based at least in part on the negative zero control indicator ~~being set to a defined value, wherein the determining whether to control the sign of the result determines whether to control output of the sign of the portion of the input value, as provided in the result, in the output of the execution of the instruction; and~~ (544) being set to a defined value; and

performing further processing, as part the executing the instruction (300), based on the determining, wherein the further processing forces a positive sign on the zero value, or allows the zero result to be output with a negative sign.

12. The computer system of claim 11, wherein the negative zero control indicator (544) being set to the defined value indicates that the negative zero control is enabled for execution of the instruction, wherein the result of the performing the one or more operations is a numerical ~~zero~~ value zero having the sign ~~provided in the result~~, wherein the determining determines, based on the negative zero control being enabled for execution of the instruction, not to control the sign of the numerical ~~zero~~ value zero, and wherein the further processing comprises producing ~~the~~an output of execution of the instruction, the output comprising the numerical ~~zero~~ value zero having the sign.

13. The computer system of claim 11, wherein the negative zero control indicator (544) being set to another value, different from the defined value, indicates that the negative zero control is not enabled for execution of the instruction, wherein the result of the performing the one or more operations is a numerical ~~zero~~ value zero having the sign ~~provided in the result~~, wherein the determining determines, based on the negative zero control not being enabled, to force the sign of the numerical ~~zero~~ value zero to be positive, and wherein the further processing comprises producing ~~the~~an output of execution of the instruction, the producing comprising forcing the sign of the numerical ~~zero~~ value zero to be positive, wherein the output comprises the numerical ~~zero~~ value zero having the forced positive sign.

14. The computer system of claim 11, wherein the executing further comprises determining whether the result has a zero magnitude, wherein the determining whether to control the sign of the result and the performing further processing are performed based on determining that the result has a zero magnitude.

15. The computer system of claim 11, wherein the determining whether to control the sign of the result is further based on a selected mode for execution of the instruction (300), the selected mode comprising a selected sign operation of the instruction (300), the selected sign operation being selected by a field (304, 508) of the instruction (300).

16. The computer system of claim 11, wherein the input value is a binary coded decimal number, and wherein an output of the further processing and the executing is a negative zero value in binary coded decimal format.

17. A computer-implemented method of facilitating processing within a computing environment (100), the computer-implemented method comprising:

obtaining an instruction (300) to perform one or more operations using an input value, the instruction (300) being a single architected instruction~~,~~ (300), and the instruction (300) comprising a negative zero control indicator (544) indicating whether negative zero control is

enabled for execution of the instruction (300), wherein enabling or disabling of the negative zero control results in control of a sign of an output zero value; and

executing the instruction (300), the executing comprising:

performing the one or more operations using the input value to obtain a result~~, wherein the one or more operations comprises obtaining a portion of the input value to move into a location as an output of execution of the instruction, the portion of the input value~~ comprising ~~numerical values and a sign associated with those numerical values, wherein the result comprises the obtained portion of the input value, in which the~~ a sign ~~of the obtained portion of the input value is a sign of the result; ~~;

determining whether to control the sign of the result, the determining being based at least in part on the negative zero control indicator (544) being set to a defined value~~, wherein the determining whether to control the sign of the result determines whether to control output of the sign of the portion of the input value, as provided in the result, in the output of the execution of the instruction; and ~~; and

performing further processing, as part ~~of~~the executing the instruction~~,~~ (300), based on the determining~~.~~

, wherein the further processing forces a positive sign on the zero value, or allows the zero result to be output with a negative sign.

18. The method of claim 17, wherein the negative zero control indicator (544) being set to the defined value indicates that the negative zero control is enabled for execution of the instruction, wherein the result of the performing the one or more operations is a numerical ~~zero~~ value zero having the sign ~~provided in the result~~, wherein the determining determines, based on the negative zero control being enabled for execution of the instruction, not to control the sign of the numerical ~~zero~~ value zero, and wherein the further processing comprises producing ~~the~~an output of execution of the instruction, the output comprising the numerical ~~zero~~ value zero having the sign.

19. The method of claim 17, wherein the negative zero control indicator (544) being set to another value, different from the defined value, indicates that the negative zero control is not enabled for execution of the instruction, wherein the result of the performing the one or more operations is a numerical ~~zero~~ value zero having the sign ~~provided in the result~~, wherein the

determining determines, based on the negative zero control not being enabled, to force the sign of the numerical ~~zero~~ value zero to be positive, and wherein the further processing comprises producing ~~the~~an output of execution of the instruction, the producing comprising forcing the sign of the numerical ~~zero~~ value zero to be positive, wherein the output comprises the numerical ~~zero~~ value zero having the forced positive sign.

20. The method of claim 17, wherein the determining whether to control the sign of the result is further based on a selected mode for execution of the instruction (300), the selected mode comprising a selected sign operation of the instruction (300), the selected sign operation being selected by a field (304, 508) of the instruction (300), wherein the input value is a binary coded decimal number, and wherein an output of the further processing and the executing is a negative zero value in binary coded decimal format.