CLAIMS

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

one or more computer readable storage media and program instructions collectively stored on the one or more computer readable storage media to perform a method comprising:

executing an instruction to perform an operation selected from a plurality of operations configured for the instruction, the instruction including an operation code field indicating an operation to be performed and a field separate from the operation code field used to specify a control to be used in execution of the instruction, and wherein the executing the instruction comprises:

determining a value of a selected operand of the instruction, wherein the determining the value of the selected operand of the instruction is based on the control specified using the field of the instruction, wherein the control is set to one control value of multiple control values configured for the control, the multiple control values including a first value and a second value, and wherein the determining the value of the selected operand of the instruction comprises:

reading the selected operand of the instruction from a selected operand location to obtain the value of the selected operand, based on the control of the instruction having the first value; and

using a predetermined value as the value of the selected operand, based on the control of the instruction having the second value;

multiplying the value and another selected operand of the instruction to obtain a product;

performing an arithmetic operation using the product and a chosen operand of the instruction to obtain an intermediate result;

obtaining a result from the intermediate result; and

placing the result in a selected location.

2. The computer program product of claim 1, wherein the using the predetermined value as the value of the selected operand comprises using the predetermined value absent reading the selected operand from the selected operand location, the selected operand location comprising at least one register.

3. The computer program product of claim 1, wherein the predetermined value comprises a value of one.

4. The computer program product of claim 1, wherein the executing the instruction further comprises:

determining whether a rounding operation is to be performed; and

performing the rounding operation on a version of the intermediate result to obtain the result, based on determining that the rounding operation is to be performed.

5. The computer program product of claim 4, wherein the version of the intermediate result comprises a normalized result.

6. The computer program product of claim 4, wherein the determining whether the rounding operation is to be performed comprises checking a rounding mode control of the instruction, wherein based on the rounding mode control being equal to one value, the rounding operation is to be performed.

7. The computer program product of claim 1, wherein the obtaining the result comprises:

normalizing the intermediate result to obtain a normalized result; and

using the normalized result to obtain the result.

8. The computer program product of claim 7, wherein the using the normalized result to obtain the result comprises:

determining whether a rounding operation is to be performed;

rounding the normalized result, based on determining that the rounding operation is to be performed, to obtain the result; and

truncating the normalized result, based on determining that the rounding operation is not to be performed, to obtain the result.

9. The computer program product of claim 1, wherein the selected location comprises at least one register specified by at least one field of the instruction.

10. The computer program product of claim 1, wherein the arithmetic operation comprises an add operation, and based on the control having the second value, the control indicates that the instruction is to perform an operation in that the other selected operand is multiplied by the predetermined value of one, and based on the control having the first value, the control indicates that the instruction is to perform a multiply and add operation and that the other selected operand is multiplied by the value read from the selected operand location.

11. The computer program product of claim 1, wherein the executing the instruction further includes determining the one control value to which the control is set and performing the determining the value of the selected operand based on determining the one control value.

12. The computer program product of claim 1, wherein the control set to the first value indicates the operation selected from the plurality of operations to be performed includes a multiplication using a multiplier read from the selected operand location and the arithmetic operation, and wherein the control set to the second value indicates another operation selected from the plurality of operations is to be performed that includes multiplication of the predetermined value and the arithmetic operation.

13. The computer program product of claim 12, wherein the predetermined value is a value of one in a particular format.

14. The computer program product of claim 13, wherein the particular format is a hexadecimal floating point format.

15. A computer system for facilitating processing within a computing environment, the computer system comprising:

a memory; and

a processor in communication with the memory, wherein the computer system is configured to perform a method, said method comprising:

executing an instruction to perform an operation selected from a plurality of operations configured for the instruction, the instruction including an operation code field indicating an operation to be performed and a field separate from the operation code field used to specify a control to be used in execution of the instruction, and wherein the executing the instruction comprises:

determining a value of a selected operand of the instruction, wherein the determining the value of the selected operand of the instruction is based on the control specified using the field of the instruction, wherein the control is set to one control value of multiple control values configured for the control, the multiple control values including a first value and a second value, and wherein the determining the value of the selected operand of the instruction comprises:

reading the selected operand of the instruction from a selected operand location to obtain the value of the selected operand, based on the control of the instruction having the first value; and

using a predetermined value as the value of the selected operand, based on the control of the instruction having the second value;

multiplying the value and another selected operand of the instruction to obtain a product;

performing an arithmetic operation using the product and a chosen operand of the instruction to obtain an intermediate result;

obtaining a result from the intermediate result; and

placing the result in a selected location.

16. The computer system of claim 15, wherein the using the predetermined value as the value of the selected operand comprises using the predetermined value absent reading the selected operand from the selected operand location, the selected operand location comprising at least one register, and wherein the predetermined value comprises a value of one.

17. The computer system of claim 15, wherein the executing the instruction further comprises:

determining whether a rounding operation is to be performed; and

performing the rounding operation on a version of the intermediate result to obtain the result, based on determining that the rounding operation is to be performed.

18. The computer system of claim 17, wherein the determining whether the rounding operation is to be performed comprises checking a rounding mode control of the instruction, wherein based on the rounding mode control being equal to one value, the rounding operation is to be performed.

19. The computer system of claim 15, wherein the obtaining the result comprises:

normalizing the intermediate result to obtain a normalized result; and

using the normalized result to obtain the result.

20. A computer-implemented method of facilitating processing within a computing environment, the computer-implemented method comprising:

executing an instruction to perform an operation selected from a plurality of operations configured for the instruction, the instruction including an operation code field indicating an operation to be performed and a field separate from the operation code field used to specify a control to be used in execution of the instruction, and wherein the executing the instruction comprises:

determining a value of a selected operand of the instruction, wherein the determining the value of the selected operand of the instruction is based on the control specified using the field of the instruction, wherein the control is set to one control value of multiple control values configured for the control, the multiple control values including a first value and a second value, and wherein the determining the value of the selected operand of the instruction comprises:

reading the selected operand of the instruction from a selected operand location to obtain the value of the selected operand, based on the control of the instruction having the first value; and

using a predetermined value as the value of the selected operand, based on the control of the instruction having the second value;

multiplying the value and another selected operand of the instruction to obtain a product;

performing an arithmetic operation using the product and a chosen operand of the instruction to obtain an intermediate result;

obtaining a result from the intermediate result; and

placing the result in a selected location.

21. The computer-implemented method of claim 20, wherein the using the predetermined value as the value of the selected operand comprises using the predetermined value absent reading the selected operand from the selected operand location, the selected operand location comprising at least one register, and wherein the predetermined value comprises a value of one.

22. The computer-implemented method of claim 20, wherein the executing the instruction further comprises:

determining whether a rounding operation is to be performed; and

performing the rounding operation on a version of the intermediate result to obtain the result, based on determining that the rounding operation is to be performed.

23. The computer-implemented method of claim 22, wherein the determining whether the rounding operation is to be performed comprises checking a rounding mode control of the instruction, wherein based on the rounding mode control being equal to one value, the rounding operation is to be performed.

24. The computer-implemented method of claim 20, wherein the obtaining the result comprises:

normalizing the intermediate result to obtain a normalized result; and

using the normalized result to obtain the result.

25. The computer-implemented method of claim 20, wherein the executing the instruction further includes determining the one control value to which the control is set and performing the determining the value of the selected operand based on determining the one control value.

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