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:

obtaining an instruction to convert data from a source data type to a target data type, the source data type being selected from one or more source data types supported by the instruction and the target data type being selected from one or more target data types supported by the instruction;

determining, based on a selected data type of one of the source data type and the target data type, a rounding mode for use by the instruction, the selected data type comprising a machine-specific data type specified using the instruction, the machine-specific data type is optimized for use by a particular processor running on a particular hardware machine, and wherein the rounding mode is implicitly set based on the selected data type, wherein the rounding mode is assigned to the selected data type such that the rounding mode is not selectable;

performing a conversion of the data from the source data type to the target data type, the conversion including performing a rounding operation using the rounding mode implicitly set based on the selected data type, wherein the performing the conversion provides a result in the target data type; and

writing the result to a select location.

2. The computer program product of claim 1, wherein the selected data type is the target data type specified using the instruction, the target data type comprising a machine-specific data type specified using the instruction.

3. The computer program product of claim 2, wherein the machine-specific data type comprises a neural network processing-data-type-1 data type, and wherein the rounding mode assigned to the neural network processing-data-type-1 data type is a round to nearest ties away from zero.

4. The computer program product of claim 2, wherein the source data type is a standard data type specified using the instruction.

5. The computer program product of claim 1, wherein the selected data type is the source data type specified using the instruction, the source data type comprising a machine-specific data type specified using the instruction.

6. The computer program product of claim 5, wherein the machine-specific data type comprises a neural network processing-data-type-1 data type, and wherein the rounding mode assigned to the neural network processing-data-type-1 data type is a round to nearest ties away from zero.

7. The computer program product of claim 5, wherein the target data type is a standard data type specified using the instruction.

8. The computer program product of claim 1, wherein the data to be converted includes source data in the source data type, the source data including a concatenation of data in one register specified using one field of the instruction and other data in another register specified using another field of the instruction.

9. The computer program product of claim 8, wherein the performing the conversion includes rounding the source data based on the rounding mode to provide rounded data and converting the rounded data to provide the result in the target data type.

10. The computer program product of claim 1, wherein the data to be converted includes source data in the source data type obtained using the instruction, and wherein the performing the conversion includes rounding the source data based on the rounding mode to provide rounded data in a precision of a target data type number and converting the rounded data to provide the result in the target data type.

11. 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:

obtaining an instruction to convert data from a source data type to a target data type, the source data type being selected from one or more source data types supported by the instruction and the target data type being selected from one or more target data types supported by the instruction;

determining, based on a selected data type of one of the source data type and the target data type, a rounding mode for use by the instruction, the selected data type comprising a machine-specific data type specified using the instruction, the machine-specific data type is optimized for use by a particular processor running on a particular hardware machine, and wherein the rounding mode is implicitly set based on the selected data type, wherein the rounding mode is assigned to the selected data type such that the rounding mode is not selectable;

performing a conversion of the data from the source data type to the target data type, the conversion including performing a rounding operation using the rounding mode implicitly set based on the selected data type, wherein the performing the conversion provides a result in the target data type; and

writing the result to a select location.

12. The computer system of claim 11, wherein the selected data type is the target data type specified using the instruction, the target data type comprising a machine-specific data type specified using the instruction.

13. The computer system of claim 12, wherein the machine-specific data type comprises a neural network processing-data-type-1 data type, and wherein the rounding mode assigned to the neural network processing-data-type-1 data type is a round to nearest ties away from zero.

14. The computer system of claim 11, wherein the selected data type is the source data type specified using the instruction, the source data type comprising a machine-specific data type specified using the instruction.

15. The computer system of claim 14, wherein the machine-specific data type comprises a neural network processing-data-type-1 data type, and wherein the rounding mode

assigned to the neural network processing-data-type-1 data type is a round to nearest ties away from zero.

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

obtaining an instruction to convert data from a source data type to a target data type, the source data type being selected from one or more source data types supported by the instruction and the target data type being selected from one or more target data types supported by the instruction;

determining, based on a selected data type of one of the source data type and the target data type, a rounding mode for use by the instruction, the selected data type comprising a machine-specific data type specified using the instruction, the machine-specific data type is optimized for use by a particular processor running on a particular hardware machine, and wherein the rounding mode is implicitly set based on the selected data type, wherein the rounding mode is assigned to the selected data type such that the rounding mode is not selectable;

performing a conversion of the data from the source data type to the target data type, the conversion including performing a rounding operation using the rounding mode implicitly set based on the selected data type, wherein the performing the conversion provides a result in the target data type; and

writing the result to a select location.

17. The computer-implemented method of claim 16, wherein the selected data type is the target data type specified using the instruction, the target data type comprising a machine-specific data type specified using the instruction.

18. The computer-implemented method of claim 17, wherein the machine-specific data type comprises a neural network processing-data-type-1 data type, and wherein the rounding mode assigned to the neural network processing-data-type-1 data type is a round to nearest ties away from zero.

19. The computer-implemented method of claim 16, wherein the selected data type is the source data type specified using the instruction, the source data type comprising a machine-specific data type specified using the instruction.

20. The computer-implemented method of claim 19, wherein the machine-specific data type comprises a neural network processing-data-type-1 data type, and wherein the rounding mode assigned to the neural network processing-data-type-1 data type is a round to nearest ties away from zero.