

Claims

[Claim 1]

A computer program product for run-time instrumentation reporting, the computer program product comprising:
a tangible storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method comprising:
executing an instruction stream by a processor;
capturing, by the processor, run-time instrumentation information of said executing instruction stream;
based on said captured run-time instrumentation information, creating run-time instrumentation records;
detecting a run-time instrumentation sample point of the executing instruction stream on the processor; and
storing a reporting group in a run-time instrumentation program buffer, the storing based on the detecting a run-time instrumentation sample point, the storing comprising:
determining a current address of the run-time instrumentation program buffer, the determining based on instruction accessible run-time instrumentation controls; and
storing the reporting group into the run-time instrumentation program buffer based on an origin address and the current address of the run-time instrumentation program buffer, the reporting group comprising said created run-time instrumentation records.

[Claim 2]

The computer program product of claim 1, wherein the reporting group includes a predetermined number of run-time instrumentation records specified by the run-time instrumentation controls.

[Claim 3]

The computer program product of claim 1, wherein the method further comprises executing a program in a supervisor state to set any one of the origin address of the run-time instrumentation program buffer or the current address of the run-time instrumentation program buffer in the run-time instrumentation controls.

[Claim 4]

The computer program product of claim 3, wherein the program includes one of a load run-time instrumentation controls (LRIC) instruction and a modify run-time instrumentation controls (MRIC) instruction.

[Claim 5]

The computer program product of claim 1, wherein the method further comprises executing a program in a problem state to set the origin

address of the run-time instrumentation program buffer in the run-time instrumentation controls, wherein the program includes a modify run-time instrumentation controls (MRIC) instruction.

[Claim 6] The computer program product of claim 1, wherein the run-time instrumentation controls specify a number of records in each reporting group in the run-time instrumentation program buffer.

[Claim 7] The computer program product of claim 1, wherein the run-time instrumentation program buffer is located in an address space that is accessible by an application program.

[Claim 8] A computer implemented method for run-time instrumentation reporting, the method comprising:
executing an instruction stream by a processor;
capturing, by the processor, run-time instrumentation information of said executing instruction stream;
based on said captured run-time instrumentation information, creating run-time instrumentation records;
detecting a run-time instrumentation sample point of the executing instruction stream on the processor; and
storing a reporting group in a run-time instrumentation program buffer, the storing based on the detecting a run-time instrumentation sample point, the storing comprising:
determining a current address of the run-time instrumentation program buffer, the determining based on instruction accessible run-time instrumentation controls; and
storing the reporting group into the run-time instrumentation program buffer based on an origin address and the current address of the run-time instrumentation program buffer, the reporting group comprising said created run-time instrumentation records.

[Claim 9] The method of claim 8, wherein the reporting group includes a predetermined number of run-time instrumentation records specified by the run-time instrumentation controls.

[Claim 10] The method of claim 8, further comprising executing a program in a supervisor state to set any one of the origin address of the run-time instrumentation program buffer or the current address of the run-time instrumentation program buffer in the run-time instrumentation controls.

[Claim 11] The method of claim 10, wherein the program includes one of a load run-time instrumentation controls (LRIC) instruction and a modify run-time instrumentation controls (MRIC) instruction.

- [Claim 12] The method of claim 8, further comprising executing a program in a problem state to set the origin address of the run-time instrumentation program buffer in the run-time instrumentation controls, wherein the program includes a modify run-time instrumentation controls (MRIC) instruction.
- [Claim 13] The method of claim 8, wherein the run-time instrumentation controls specify a number of records in each reporting group in the run-time instrumentation program buffer.
- [Claim 14] The method of claim 8, wherein the run-time instrumentation program buffer is located in an address space that is accessible by an application program.
- [Claim 15] A system for run-time instrumentation reporting, the system comprising:
a processor, the system configured to perform a method comprising:
executing an instruction stream by the processor;
capturing, by the processor, run-time instrumentation information of said executing instruction stream;
based on said captured run-time instrumentation information, creating run-time instrumentation records;
detecting a run-time instrumentation sample point of the executing instruction stream on the processor; and
storing a reporting group in a run-time instrumentation program buffer, the storing based on the detecting a run-time instrumentation sample point, the storing comprising:
determining a current address of the run-time instrumentation program buffer, the determining based on instruction accessible run-time instrumentation controls; and
storing the reporting group into the run-time instrumentation program buffer based on an origin address and the current address of the run-time instrumentation program buffer, the reporting group comprising said created run-time instrumentation records.
- [Claim 16] The system of claim 15, wherein the reporting group includes a predetermined number of run-time instrumentation records specified by the run-time instrumentation controls.
- [Claim 17] The system of claim 15, wherein the method further comprises executing a program in a supervisor state to set any one of the origin address of the run-time instrumentation program buffer or the current address of the run-time instrumentation program buffer in the run-time

instrumentation controls.

[Claim 18]

The system of claim 17, wherein the program includes one of a load run-time instrumentation controls (LRIC) instruction and a modify run-time instrumentation controls (MRIC) instruction.

[Claim 19]

The system of claim 15, wherein the method further comprises executing a program in a problem state to set the origin address of the run-time instrumentation program buffer in the run-time instrumentation controls, wherein the program includes a modify run-time instrumentation controls (MRIC) instruction.

[Claim 20]

The system of claim 15, wherein the run-time instrumentation controls specify a number of records in each reporting group in the run-time instrumentation program buffer.

CLAIMS

1. A computer program product for run-time instrumentation reporting, the computer program product comprising:

a tangible storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method comprising:

executing an instruction stream of a computer program, the executing by a processor;

determining, based on contents of an instrumentation control field in a program status word (PSW) associated with the computer program, that run-time instrumentation information of said executing instruction stream should be captured, wherein the contents of the PSW associated with the computer program persist during context switches by the processor;

capturing, by the processor, the run-time instrumentation information of said executing instruction stream;

based on said captured run-time instrumentation information, creating run-time instrumentation records;

detecting a run-time instrumentation sample point of the executing instruction stream on the processor; and

storing a reporting group in a run-time instrumentation program buffer, the storing based on the detecting a run-time instrumentation sample point, the storing comprising:

determining a current address of the run-time instrumentation program buffer, the determining based on instruction accessible run-time instrumentation controls; and

storing the reporting group into the run-time instrumentation program buffer based on an origin address and the current address of the run time instrumentation program buffer, the reporting group comprising said created run-time instrumentation records.

2. The computer program product of claim 1, wherein the reporting group includes a predetermined number of run-time instrumentation records specified by the run-time instrumentation controls.

3. The computer program product of claim 1, wherein the method further comprises executing a program in a supervisor state to set any one of the origin address of the run-time instrumentation program buffer or the current address of the run-time instrumentation program buffer in the run-time instrumentation controls.

4. The computer program product of claim 3, wherein the program includes one of a load run-time instrumentation controls (LRIC) instruction and a modify run-time instrumentation controls (MRIC) instruction.
5. The computer program product of claim 1, wherein the method further comprises executing a program in a problem state to set the origin address of the run-time instrumentation program buffer in the run-time instrumentation controls, wherein the program includes a modify run-time instrumentation controls (MRIC) instruction.
6. The computer program product of claim 1, wherein the run-time instrumentation controls specify a number of records in each reporting group in the run-time instrumentation program buffer.
7. The computer program product of claim 1, wherein the run-time instrumentation program buffer is located in an address space that is accessible by an application program.
8. A computer implemented method for run-time instrumentation reporting, the method comprising:
 - executing an instruction stream of a computer program in a multithreaded processing environment, the executing by a processor;
 - determining, based on contents of an instrumentation control field in a program status word (PSW) dedicated to the computer program, that run-time instrumentation information of said executing instruction stream should be captured, wherein the contents of the PSW dedicated to the computer program persist during context switches by the processor;
 - capturing, by the processor, the run-time instrumentation information of said executing instruction stream; based on said captured run-time instrumentation information, creating run-time instrumentation records;
 - detecting a run-time instrumentation sample point of the executing instruction stream on the processor; and storing a reporting group in a run-time instrumentation program buffer, the storing based on the detecting a run-time instrumentation sample point, the storing comprising:
 - determining a current address of the run-time instrumentation program buffer, the determining based on instruction accessible run-time instrumentation controls; and

storing the reporting group into the run-time instrumentation program buffer based on an origin address and the current address of the run-time instrumentation program buffer, the reporting group comprising said created run-time instrumentation records.

9. The method of claim 8, wherein the reporting group includes a predetermined number of run-time instrumentation records specified by the run-time instrumentation controls.

10. The method of claim 8, further comprising executing a program in a supervisor state to set any one of the origin address of the run-time instrumentation program buffer or the current address of the run-time instrumentation program buffer in the run-time instrumentation controls.

11. The method of claim 10, wherein the program includes one of a load run-time instrumentation controls (LRIC) instruction and a modify run-time instrumentation controls (MRIC) instruction.

12. The method of claim 8, further comprising executing a program in a problem state to set the origin address of the run-time instrumentation program buffer in the run-time instrumentation controls, wherein the program includes a modify run-time instrumentation controls (MRIC) instruction.

13. The method of claim 8, wherein the run-time instrumentation controls specify a number of records in each reporting group in the run-time instrumentation program buffer.

14. The method of claim 8, wherein the run-time instrumentation program buffer is located in an address space that is accessible by an application program.

15. A system for run-time instrumentation reporting, the system comprising:
 a processor, the system configured to perform a method comprising:
 executing an instruction stream of a computer program, the executing by the processor;
 determining, based on contents of an instrumentation control field in a program status word (PSW) associated with the computer program, that run-time instrumentation information of said executing instruction stream should be captured, wherein the contents of the PSW associated with the computer program persist during context switches by the processor;
 capturing, by the processor, the run-time instrumentation information of said executing instruction stream;
 based on said captured run-time instrumentation information, creating run-time instrumentation records;

detecting a run-time instrumentation sample point of the executing instruction stream on the processor; and

storing a reporting group in a run-time instrumentation program buffer, the storing based on the detecting a run-time instrumentation sample point, the storing comprising:

determining a current address of the run-time instrumentation program buffer, the determining based on instruction accessible run-time instrumentation controls; and

storing the reporting group into the run-time instrumentation program buffer based on an origin address and the current address of the run time instrumentation program buffer, the reporting group comprising said created run-time instrumentation records.

16. The system of claim 15, wherein the reporting group includes a predetermined number of run-time instrumentation records specified by the run-time instrumentation controls.

17. The system of claim 15, wherein the method further comprises executing a program in a supervisor state to set any one of the origin address of the run-time instrumentation program buffer or the current address of the run-time instrumentation program buffer in the run-time instrumentation controls.

18. The system of claim 17, wherein the program includes one of a load run-time instrumentation controls (LRIC) instruction and a modify run-time instrumentation controls (MRIC) instruction.

19. The system of claim 15, wherein the method further comprises executing a program in a problem state to set the origin address of the run-time instrumentation program buffer in the run-time instrumentation controls, wherein the program includes a modify run-time instrumentation controls (MRIC) instruction.

20. The system of claim 15, wherein the run-time instrumentation controls specify a number of records in each reporting group in the run-time instrumentation program buffer.