CLAIMS:

1. An apparatus for executing a software program, comprising:

a processing unit;

at least one memory component, each connected to the processing unit and mapped to at least one range of memory addresses of a plurality of memory address ranges of the processing unit; and

at least one memory tracking circuitry connected to the processing unit and to the at least one memory component, configured for:

in each iteration of a plurality of iterations, updating at least one statistical counter of a plurality of statistical counters in response to receiving a memory access command from the processing unit; and

providing one or more of the plurality of statistical counters to a memory management component for the purpose of mapping application memory of the software program to the at least one memory component.

2. The apparatus of claim 1, wherein the plurality of statistical counters comprises at least one of:

at least one watermark counter, selected from the group consisting of: a high access counter and a low access counter; and

a plurality of range access counters each associated with one of the plurality of memory address ranges.

3. The apparatus of any of claims 1 and 2, wherein at least one other of the plurality of statistical counters is implemented in the at least one memory tracking circuitry, optionally wherein at least one yet other of the plurality of statistical counters is implemented in a cache memory component connected to one or more of the at least one memory component, and optionally wherein at least one additional other of the plurality of statistical counters is implemented in one of the at least one memory component.

4. The apparatus of any of claims 1-3, wherein the at least one memory tracking circuitry comprises a plurality of local tracking circuitries;

wherein each of the plurality of local tracking circuitries is connected to the processing unit and to one or more memory components of the at least one memory component; and

wherein each local tracking circuitry of the plurality of local tracking circuitries updates the at least one statistical counter in response to receiving the memory access command when at least one memory address range of the plurality of memory address ranges associated with the one or more memory components connected to the local tracking circuitry comprises a local memory address that is a memory address in the memory address command.

5. The apparatus of any of claims 1-4, wherein the application memory of the software program comprises a plurality of application memory areas, each stored in one of the at least one memory components; and

wherein the mapping of the application memory by the memory management component comprises:

performing an analysis comprising the one or more statistical counters; and

moving at least one application memory area of the plurality of application memory areas from one of the at least one memory component to another of the at least one memory component in response to an outcome of the analysis.

6. The apparatus of claim 5, wherein the memory mapping component maps the application memory while the processing unit executes the software program.

7. The apparatus of any of claim 1-6, wherein the at least one memory tracking circuitry is further configured for:

in each management iteration of one or more management iterations:

executing the plurality of iterations, comprising updating the at least one statistical counter;

providing the one or more statistical counters to the memory management component; and

resetting one or more other of the plurality of statistical counters.

8. The apparatus of any of claims 2-7, wherein updating the at least one statistical counter comprises:

identifying a memory address in the memory access command;

identifying a memory address range of the plurality of memory address ranges, where the memory address range comprises the memory address;

incrementing the respective range access counter associated with the memory address range; and

when the respective range access counter exceeds a high access threshold value, incrementing the high access counter.

9. The apparatus of claim 8,

wherein providing the one or more statistical counters to the memory management component comprises:

providing the at least one watermark counter; and

in response to a request from the memory management component, providing at least onerange access counter of the plurality of range access counters; and

wherein the memory management component is configured for:

performing another analysis comprising the at least one watermark counter; and

sending a request to the at least one memory tracking circuitry to provide the at least onerange access counter subject to another outcome of the other analysis.

10. The apparatus of any of claims 8 and 9, wherein the memory management component is further configured for configuring in the at least one memory tracking circuitry at least one of: the low access threshold value and the high access threshold value.

11. The apparatus of claim 10, wherein the memory management component configures in the at least one memory tracking circuitry at least one of: the low access threshold value and the high access threshold value, subject to yet another outcome of yet another analysis comprising the one or more statistical counters.

12. The apparatus of any of claims 1-11, wherein the at least one memory tracking circuitry is configured for updating the at least one statistical counter and for providing the one or more of the plurality of statistical counters while the processing unit executes the software program.

13. The apparatus of any of claims 1-12, wherein the memory management component comprises a software object executed by the processing unit.

14. The apparatus of any of claims 1-12, wherein the memory management component comprises a memory management circuitry connected to the at least one memory tracking circuitry and the at least one memory components.

15. The apparatus of any of claims 1-14, wherein the processing unit is configured for executing an operating system;

wherein the operating system addresses the at least one memory component using a plurality of operating system memory pages, each having one of an identified set of page sizes; and

wherein at least one identified memory address range of the plurality of memory address ranges has a range size that is not equal to any of the set of page sizes.

16. A method for managing memory in an apparatus for executing one or more software programs, comprising:

in each iteration of a plurality of iterations updating, by at least one memory tracking circuitry connected to a processing unit and to at least one memory component connected to the processing unit, where each of the at least one memory component is mapped to at least one range of memory addresses of a plurality of memory address ranges of the processing unit, at least one statistical counter of a plurality of statistical counters in response to receiving a memory access command from the processing unit; and

providing one or more of the plurality of statistical counters to a memory management component for the purpose of mapping application memory of a software program to the at least one memory component.

17. A method for a memory management component, comprising:

in each management iteration of one or more management iterations, receiving from at least one memory tracking circuitry connected to a processing unit and to at least one memory component connected to the processing unit, where each of the at least one memory component is mapped to at least one range of memory addresses of a plurality of memory address ranges of the processing unit, one or more of a plurality of statistical counters for the purpose of mapping application memory of a software program to the at least one of memory component.

18. The method of claim 17, wherein the plurality of statistical counters comprises at least one of a high access counter, a low access counter, and a plurality of range access counters each associated with one of the plurality of memory address ranges;

wherein receiving the one or more statistical counters comprises receiving at least one of: the high access counter and the low access counter; and

wherein the method further comprises:

performing an analysis comprising at least one of: the low access counter and the high access counter; and

sending a request to the at least one memory tracking circuitry to provide the at least onerange access counter subject to an outcome of the other analysis.

19. A software program product for memory management, comprising:

a non-transitory computer readable storage medium;

program instructions for: in each management iteration of one or more management iterations, receiving from at least one memory tracking circuitry connected to a processing unit and to at least one memory component connected to the processing unit, where each of the at least one memory component is mapped to at least one range of memory addresses of a plurality of memory address ranges of the processing unit, one or more of a plurality of statistical counters for the purpose of mapping application memory of a software program to the at least one memory component;

wherein the program instructions are executed by at least one computerized processor from the non-transitory computer readable storage medium.

20. A memory tracking circuitry, comprising a plurality of statistical counters comprising:

a high access counter;

a low access counter; and

a plurality of range access counters;

wherein the memory tracking circuitry is configured for, when connected to a processing unit and to at least one memory component, each connected to the processing unit and mapped to at least one range of memory addresses of a plurality of memory address ranges of the processing unit, and when each of the plurality of range access counters is associated with one of the plurality of memory address ranges:

in each iteration of a plurality of iterations, in response to receiving a memory access command from the processing unit:

identifying a memory address in the memory access command;

identifying a memory address range of the plurality of memory address ranges, where the memory address range comprises the memory address;

incrementing the respective range access counter associated with the memory address range; and

when the respective range access counter exceeds a high access threshold value, incrementing the high access counter; and

providing one or more of the plurality of statistical counters to a memory management component for the purpose of mapping application memory of the software program to the at least one memory component.