

Claims

What is claimed is:

1. An apparatus, comprising:

a processor including:

a plurality of architecturally identical cores, wherein a first core of the plurality of architecturally identical cores has a first physical characteristic and a second core of the plurality of architecturally identical cores has a second physical characteristic that is different than the first physical characteristic; and

a favored core module to be operated by the processor, the favored core module to:

generate a ranking of the first core and the second core based on different physical characteristics of the first core and the second core;

identify one of the first and second cores as favored core with respect to the other of the first and second cores based on the ranking;

determine whether a demand of a thread is greater than a threshold; and

in response to a determination that the demand of the thread is greater than the threshold, affinitize the thread to the identified favored core if the thread is not already affinitized to the identified favored core, including:

add the thread to a tracker list;

sort threads of the tracker list based on at least one of an inclusion list or user request received by a user interface;

perform a first affinitization of an initial thread of the sorted tracker list to a core of an initial entry in a favored core list;

perform a second affinitization of a next thread of the sorted tracker list to a core of a next entry in the favored core list; and

repeat the second affinitization until all the threads of the sorted tracker list are affinitized to a respective one of the cores of the favored core list;

wherein the favored core module is further to:

determine whether a first number of affinitized threads having demand greater than the threshold is greater than a second number of running cores of the processor; and

in response to the determination that the first number is greater than the second number, unaffinitize all thread-core affinitizations corresponding to at least the identified favored core.

2. The apparatus of claim 1, wherein the one of the first and second physical characteristics that corresponds to the identified favored core includes a first voltage that is lower than a second voltage of the other of the first and second physical characteristics.

3. The apparatus of claim 2, wherein the first and second cores are associated with a same operating frequency.

4. The apparatus of claim 2, wherein the first and second cores are associated with different operating frequencies.

5. The apparatus of claim 1, wherein the identified favored core corresponds to a user-selection input via a user interface.

6. The apparatus of claim 1, wherein the identified favored core corresponds to data of a fuse table.

7. A computer-readable medium having instructions stored thereon that, in response to execution by a processing device, cause the processing device to perform operations, to:

generate a ranking of the first core and the second core based on different physical characteristics of the first core and the second core;

identify one of a plurality of cores of a processor as favored core with respect to another of the plurality of cores based on the ranking;

determine whether a demand of a thread corresponding to the processor is greater than a threshold; and

in response to a determination that the demand of the thread is greater than the threshold, affinitize the thread to the identified favored core if the thread is not already affinitized to the identified favored core, including:

add the thread to a tracker list;

sort threads of the tracker list based on at least one of an inclusion list or user request received by a user interface;

perform a first affinitization of an initial thread of the sorted tracker list to a core of an initial entry in a favored core list;

perform a second affinitization of a next thread of the sorted tracker list to a core of a next entry in the favored core list; and

repeat the second affinitization until all the threads of the sorted tracker

list are affinitized to a respective one of the cores of the favored core list;
wherein the operations are further to:

determine whether a first number of affinitized threads having demand greater than the threshold is greater than a second number of running cores of the processor; and
5 in response to the determination that the first number is greater than the second number, unaffinitize all thread-core affinitizations corresponding to at least the identified favored core.

8. An apparatus, comprising:

10 a plurality of cores, wherein a first core of the plurality of cores has a first physical characteristic and a second core of the plurality of cores has a second physical characteristic that is different than the first physical characteristic; and

a power control unit to:

determine whether to migrate a candidate thread of threads associated with
15 an operating system to or from a candidate core of the plurality of cores;

ascertain whether the operating system includes a predetermined mode;

select the candidate core of the plurality of cores based on a result of the
ascertainment

wherein the power control unit is further to:

20 generate a first ranking of a first group of the plurality of cores based on differing physical characteristics of the plurality of cores if the operating system includes the predetermined mode;

generate a second ranking of a second group of the plurality of cores based on the
differing physical characteristics of the plurality of cores if the operating system does not
25 include the predetermined mode, wherein the second ranking is different than the first ranking; and

select the candidate core of the plurality of cores from a top of the first or second
ranking.

9. The apparatus of claim 8, wherein the power control unit is further to:

select a first subset of the plurality of cores, wherein each core of the first subset has a
corresponding physical characteristic greater than a threshold physical characteristic; and

wherein a second subset of the plurality of cores includes the remaining cores;

form the first or second group at a first time responsive to identifying ones of the cores of
35 the first subset that are running and associated with work scheduled as of the first time.

10. The apparatus of claim 9, wherein the power control unit is further to:
form a third group of the plurality of cores at a second time responsive to identifying
ones of the cores of the second subset that are running as of the first time.

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11. The apparatus of claim 10, wherein the power control unit is further to:
identify the candidate thread and the candidate core during an iteration of an iterative
migration checking process that corresponds to the first and second times only if the operating
system does not include the predetermined mode and members of the second group are the same
as members of the third group; and

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identify the candidate thread and the candidate core during an iteration of an iterative
migration checking process that corresponds to the first and second times only if the operating
system does include the predetermined mode and members of the first ranking are the same and
in the same order as members of a ranking of the third group.

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12. A method, comprising:
determining whether to migrate a candidate thread of threads of an operating system to or
from a candidate of the plurality of architecturally identical cores;
ascertaining whether the operating system includes a predetermined mode; and
selecting the candidate core of the plurality of architecturally identical cores based on a
result of the ascertaining,

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the method further comprising:

generating a first ranking of a first group of the plurality of architecturally identical cores
based on differing physical characteristics of the plurality of architecturally identical cores if the
operating system includes the predetermined mode;

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generating a second ranking of a second group of the plurality of architecturally identical
cores based on the differing physical characteristics of the plurality of architecturally identical
cores if the operating system does not include the predetermined mode, wherein the second
ranking is different than the first ranking; and

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selecting the candidate core of the plurality of architecturally identical cores from a top of
the first or second ranking.

13. The method of claim 12, further comprising:
selecting a first subset of the plurality of architecturally identical cores, wherein each
core of the first subset has a corresponding physical characteristic greater than a threshold

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physical characteristic; and

wherein a second subset of the plurality of architecturally identical cores includes the remaining cores;

5 forming the first or second group at a first time responsive to identifying ones of the cores of the first subset that are running and associated with work scheduled as of the first time.

14. The method of claim 13, further comprising:

forming a third group of the plurality of cores at a second time responsive to identifying ones of the cores of the second subset that are running as of the first time;

10 identifying the candidate thread and the candidate core during an iteration of an iterative migration checking process that corresponds to the first and second times only if the operating system does not include the predetermined mode and members of the second group are the same as members of the third group; and

15 identifying the candidate thread and the candidate core during an iteration of an iterative migration checking process that corresponds to the first and second times only if the operating system does include the predetermined mode and members of the first ranking are the same and in the same order as members of a ranking of the third group.

15. The method of claim 12, wherein the predetermined mode is a mode enabling the
20 operating system to request a specific level of performance or power for a particular piece of work.