

CLAIMS

1. A method for reconfiguring a computing environment, said method comprising:

determining, by a processor, that a configuration architectural mode facility is installed in a computing environment that is configured for a plurality of architectural modes and has a defined power-on sequence that is to power-on the computing environment in one architectural mode of the plurality of architectural modes, the one architectural mode comprising a first instruction set architecture and having a first set of supported features;

based on determining that the configuration architectural mode facility is installed, reconfiguring, by the processor, the computing environment to restrict use of the one architectural mode, wherein the reconfiguring comprises:

selecting a different power-on sequence to power-on the computing environment in another architectural mode of the plurality of architectural modes, wherein the other architectural mode is different from the one architectural mode, and the other architectural mode comprises a second instruction set architecture and having a second set of supported features;
and

executing the different power-on sequence to power-on the computing environment in the other architectural mode in place of the one architectural mode restricting use of the one architectural mode, the executing the different power-on sequence comprising creating a new program status word to control operations of the computing environment in the other architectural mode, the creating the new program status word comprising forming the new program status word to have a format indicated by the other architectural mode, the format comprising expanding an address field from a first size to a second size, and inverting an architectural mode indicator in the new program status word to indicate the other architectural mode.

2. The method of any of the preceding claims, wherein the determining that the configuration architectural mode facility is installed comprises checking a facility indicator, the facility indicator to be set unconditionally or under control of a configuration indicator.

3. The method of any of the preceding claims, wherein the reconfiguring further comprises disabling within the computing environment one or more operations to support the one architectural mode, the one or more operations comprising a switch operation to switch from the

other architectural mode to the one architectural mode, wherein a switch back to the one architectural mode is disabled.

4. The method of claim 3, wherein the disabling comprises altering processing of a signal processor instruction to provide an error based on a request to switch back to the one architectural mode.

5. The method of the preceding claims, wherein the method further comprises performing a reset of at least one processor of the computing environment, wherein the performing the reset comprises:

resetting the computing environment in the other architectural mode, the resetting comprising setting an architectural mode of the computing environment to the other architectural mode.

6. The method of the preceding claims, wherein the reconfiguring comprises changing processing of a signal processor operation, wherein a signal processor operation to set an architectural mode of the computing environment to the architectural mode it is currently in results in storing status indicating the computing environment is currently in the architectural mode, this status being treated as acceptable by an issuer of the signal processor operation.

7. The method of the preceding claims, wherein the one architectural mode is a legacy mode and the other architectural mode is an enhanced mode, and wherein the first set of supported features comprise 31-bit addressing and use of 32-bit general purpose registers, and the second set of supported features comprises 64-bit addressing and use of 64-bit general purpose registers.

8. The method of the preceding claims, wherein the computing environment is a virtual guest environment having a host processor, a first guest virtual machine at a first level of virtualization, and a second guest virtual machine at a second level of virtualization, and wherein the reconfiguring is performed for the host processor and the first guest virtual machine, but not for the second guest virtual machine, the second guest virtual machine being initiated and processing in the one architectural mode.

9. A computer system for reconfiguring a computing environment, said computer system comprising:

a memory; and

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

determining, by the processor, that a configuration architectural mode facility is installed in a computing environment that is configured for a plurality of architectural modes and has a defined power-on sequence that is to power-on the computing environment in one architectural mode of the plurality of architectural modes, the one architectural mode comprising a first instruction set architecture and having a first set of supported features;

based on determining that the configuration architectural mode facility is installed, reconfiguring, by the processor, the computing environment to restrict use of the one architectural mode, wherein the reconfiguring comprises:

selecting a different power-on sequence to power-on the computing environment in other architectural mode of the plurality of architectural modes, wherein the other architectural mode is different from the one architectural mode, and the another architectural mode comprises a second instruction set architecture and having a second set of supported features; and

executing the different power-on sequence to power-on the computing environment in the other architectural mode in place of the one architectural mode restricting use of the one architectural mode, the executing the different power-on sequence comprising creating a new program status word to control operations of the computing environment in the other architectural mode, the creating the new program status word comprising forming the new program status word to have a format indicated by the another architectural mode, the format comprising expanding an address field from a first size to a second size, and inverting an architectural mode indicator in the new program status word to indicate the another architectural mode.

10. The computer system of claim 9, wherein the reconfiguring further comprises disabling within the computing environment one or more operations to support the one architectural mode, the one or more operations comprising a switch operation to switch from the other architectural mode to the one architectural mode, wherein a switch back to the one architectural mode is disabled.

11. The computer system of claim 10, wherein the disabling comprises altering processing of a signal processor instruction to provide an error based on a request to switch back to the one architectural mode.
12. The computer system of any of claims 9 to 11, wherein the reconfiguring comprises changing processing of a signal processor operation, wherein a signal processor operation to set an architectural mode of the computing environment to the architectural mode it is currently in results in storing status indicating the computing environment is currently in the architectural mode, this status being treated as acceptable by an issuer of the signal processor operation.
13. The computer system of claim 9, wherein the determining that the configuration architectural mode facility is installed comprises checking a facility indicator, the facility indicator to be set unconditionally or under control of a configuration indicator.
14. The computer system of claim 9, wherein the method further comprises performing a reset of at least one processor of the computing environment, wherein the performing the reset comprises:
 - resetting the computing environment in the other architectural mode, the resetting comprising setting an architectural mode of the computing environment to the other architectural mode.
15. The computer system of claim 9, wherein the one architectural mode is a legacy mode and the other architectural mode is an enhanced mode, and wherein the first set of supported features comprise 31-bit addressing and use of 32-bit general purpose registers, and the second set of supported features comprises 64-bit addressing and use of 64-bit general purpose registers.
16. The computer system of claim 9, wherein the computing environment is a virtual guest environment having a host processor, a first guest virtual machine at a first level of virtualization, and a second guest virtual machine at a second level of virtualization, and wherein the reconfiguring is performed for the host processor and the first guest virtual machine, but not for the second guest virtual machine, the second guest virtual machine being initiated and processing in the one architectural mode.

17. A computer program product for reconfiguring a computing environment, the computer program product comprising:

a computer readable storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for performing a method according to any of claims 1 to 8.

18. A computer program stored on a computer readable medium and loadable into the internal memory of a digital computer, comprising software code portions, when said program is run on a computer, for performing the method of any of claims 1 to 8.