

CLAIMS

WHAT IS CLAIMED IS:

1. An apparatus comprising:
an emulation component;
a bus interface core including a set of native configuration registers; and
a configuration management component coupled to the bus interface core, the configuration management component configured to:
receive a configuration access request from the bus interface core;
request the emulation component to retrieve an emulated configuration for a peripheral device from an emulated configuration space; and
service the configuration access request using the emulated configuration.
2. The apparatus of claim 1, wherein the emulated configuration space includes emulated configurations for a plurality of peripheral devices.
3. The apparatus of any preceding claim, wherein the emulated configuration represents a physical function resource.
4. The apparatus of claim 1 or 2, wherein the emulated configuration represents a virtual function resource.
5. The apparatus of any preceding claim, wherein the emulated configuration is retrieved via execution of configuration emulation software running in an isolated environment.
6. The apparatus of any preceding claim, wherein the configuration management component includes a status register to track the progress of the configuration access request, and wherein the status register is updated after completion of servicing the configuration access request.
7. The apparatus of any preceding claim, wherein the emulation component is coupled to a DRAM, and wherein the emulated configuration space is stored in the DRAM.
8. The apparatus of any preceding claim, wherein the emulation component is coupled to a persistent memory, and wherein the emulated configuration space is stored in the persistent memory.

9. The apparatus of any preceding claim, wherein the apparatus is implemented in a system-on-chip (SoC), an application-specific integrated circuit (ASIC), a processor, or a field-programmable gate array (FPGA).
10. A method for emulating a configuration space by a peripheral device, the method comprising:
- receiving, by the peripheral device, a configuration access request;
 - determining, by the peripheral device, that the configuration access request is for an emulated configuration space;
 - retrieving, by the peripheral device, an emulated configuration for a peripheral device function from the emulated configuration space; and
 - servicing, by the peripheral device, the configuration access request using the emulated configuration.
11. The method of claim 10, wherein the emulated configuration space includes emulated configurations for a plurality of peripheral device functions.
12. The method of claim 10 or 11, wherein the emulated configuration represents a physical function resource.
13. The method of claim 10 or 11, wherein the emulated configuration represents a virtual function resource.
14. The method of any of claims 10-13, wherein servicing the configuration access request includes providing the emulated configuration to a source of the configuration access request.
15. The method of any of claims 10-14, wherein servicing the configuration access request includes updating the emulated configuration.