I/We claim:

1. A method of processing network messages in an accelerated processing device (APD), comprising:

receiving a radio frequency (RF) signal containing data being network layered messages;

assigning the received RF signal to a single instruction multiple data (SIMD) module in the APD for processing;

extracting, by the SIMD module, the network layered messages from the RF signal; and

processing, by the SIMD module, the network layered messages to obtain data transmitted via the RF signal.

2. The method of claim 1 wherein the network layered messages comprise physical layer messages; and further comprising a plurality of delayed incoming physical layer messages, and parallel processing of physical layer messages in the SIMD module.

3. The method of claim 2, further comprising:

combining the plurality of delayed incoming physical layer messages to improve signal quality; and

tracking signals between a transmitting party and a receiving party using a code agreed upon between the transmitting party and the receiving party.

4. The method of claim 1, wherein communication between the SIMD modules in the APD and a CPU is through an on-chip inter-connect, wherein the SIMD resources of the APD are allocated amongst the RF signal and graphics processing.

5. A computing system to process network messages utilizing at least one accelerated processing device (APD) having a plurality of single instruction multiple data (SIMD) modules therein, the network messages being carried by a radio frequency (RF) signal, comprising:

a CPU containing a memory management unit, the CPU being connected to a software applications module, an operating system module, and an input-output memory management unit (IOMMU) module through a common infrastructure bus;

a plurality of input-output devices each connected to the IOMMU module for receiving the RF signals;

wherein the APD is connected to the infrastructure bus and to a kernel mode driver (KMD) circuit, the KMD circuit also being connected to the infrastructure bus;

a software scheduler circuit (SWS) connected to the infrastructure bus for accessing the software applications module;

an interrupt controller circuit connected to the infrastructure bus;

a memory controller circuit, and an operating system circuit each connected to the infrastructure bus;

wherein the memory controller circuit is also connected to the IOMMU module and to a separate system memory module;

wherein the RF signals received contain physical layer messages; and wherein the carrier frequency is removed and the remaining signal converted to a digital signal; separated into different physical layer signal, where each physical layer signal is processed by a different SIMD module to provide the message data.

6. The computing system of claim 5, further comprising:

an input-output page tables circuit within the separate system memory module;

wherein the SIMD resources of the APD are allocated amongst the RF signal and graphics processing;

wherein the IOMMU module is on a separate chip from the system memory module, from the memory controller circuit, and from the input-output devices; and

wherein the system memory module also includes a devices tables circuit.

7. The computing system of claim 5, wherein the IOMMU module manages system resources using the input-output page tables circuit.

8. The computing system of claim 6, wherein the device tables circuit allows the input-output device to be assigned to specific separate domains; and wherein the devices tables circuit can be configured to include pointers to the input-output device page tables circuit.

9. The computing system of claim 5, wherein the RF signals can included message parts timely received and delayed received wherein the message parts are combined under the control of the IOMMU module to message signal quality.

10. A non-transitory computer readable storage device having computer program logic recorded thereon, execution of which, by a computing device, causes the computing device to perform method operations, comprising:

receiving a radio frequency (RF) signal;

removing the carrier from the RF signal and converting the analog signal to a digital signal;

extracting from the digital signal physical layer messages;

assigning each extracted layer signal to a respective individual single instruction multiple data module (SIMD module) for processing; and

obtaining the data received via the RF signal from each SIMD module.

11. The non-transitory computer readable storage device of claim 10, wherein the method operations further comprise:

processing in parallel each extracted physical layer message in its respective assigned SIMD module.

12. The non-transitory computer readable storage device of claim 11, the step of receiving further comprising: receiving in parallel plural RF signals some of which have been delayed because of multi-path propagation.

13. The non-transitory computer readable storage device of claim 12, the step of obtaining further comprising: combining the plurality of delayed incoming physical layer messages to improve signal quality.

14. The non-transitory computer readable storage device of claim 12, the step of combining further comprising: using a code agreed between the transmitting party and the receiving party to track signals to be combined.

15. The non-transitory computer readable storage device of claim 10, wherein the RF signal received is at least one of: a cellular signal, a WiFi signal and a global positioning (GPS) signal.

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To,

The Controller of Patents

The Patent Office at New Delhi