Technical Brief

LinkBoost Technology
Faster Clocks Out-of-the-Box

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Faster Clocks Out-of-the-Box with LinkBoost Technology

Introduction

PC enthusiasts and overclockers constantly search for ways to enhance the performance of their PCs to get an edge on the competition or earn bragging rights among their peers. Optimizing system performance is a function of the major components used—graphics processing unit (GPU) add-in cards, CPU, chipset, and memory. It's also a function of tuning and overclocking the various PC components. Overclocking, however, has disadvantages, such as system instability and inconsistency of performance measures from one system to another.

NVIDIA® LinkBoost™ technology is a technological advancement that ensures blazing graphics bus speeds, bolstering overall system performance. It features hardware and software innovations within select NVIDIA® GeForce® graphics processing units and media and communications processor (MCP) products. NVIDIA nForce® 590 SLI™ MCP is the first core logic platform to support LinkBoost.

LinkBoost

Most PC platforms are designed to provide maximum performance under industry-standard specifications. Speed of interlink connections between the various PC components is an influential aspect of performance. Depending on the application, PCI Express, as well as the interchip connection between MCP chips, can have a significant impact on performance.

Figure 1 illustrates a high-level diagram of a PC system and interconnects between its major components.

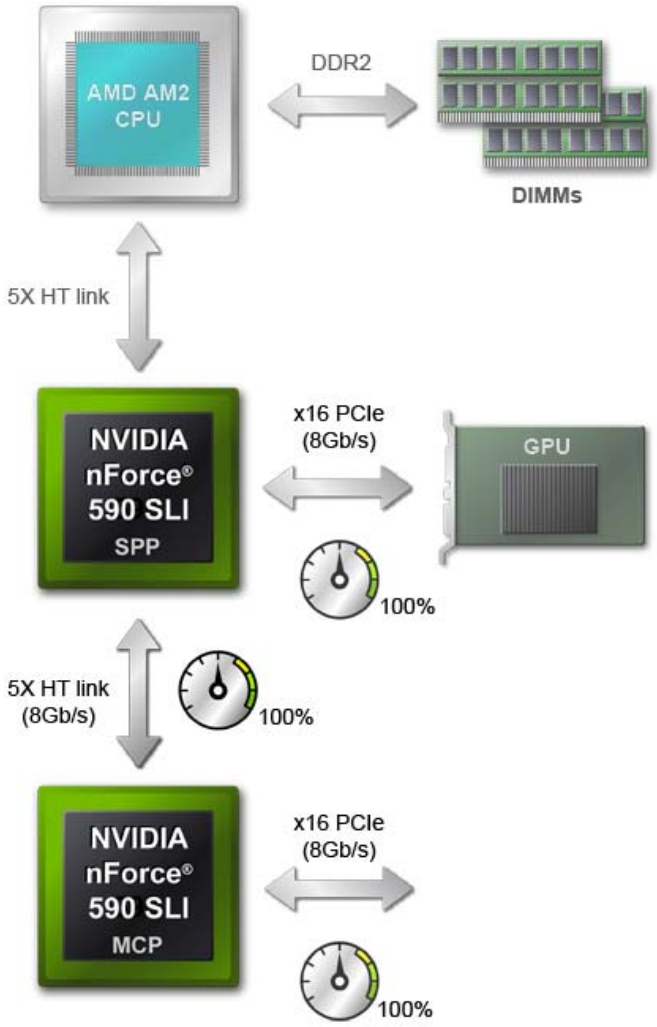

Figure 1. Industry-Standard Clock Specifications

LinkBoost, a feature of the NVIDIA nForce® 590 SLI MCP, becomes active once the system detects a GPU capable of supporting LinkBoost technology.

NVIDIA GeForce 7900 GTX is the first GPU add-in card that supports LinkBoost technology. When the GeForce 7900 GTX graphics card is present on NVIDIA nForce® 590 SLI MCP, the system automatically recognizes its presence and dynamically boosts PCI Express and MCP HyperTransport bus speeds by 25 percent. Figure 2 demonstrates how LinkBoost technology works.

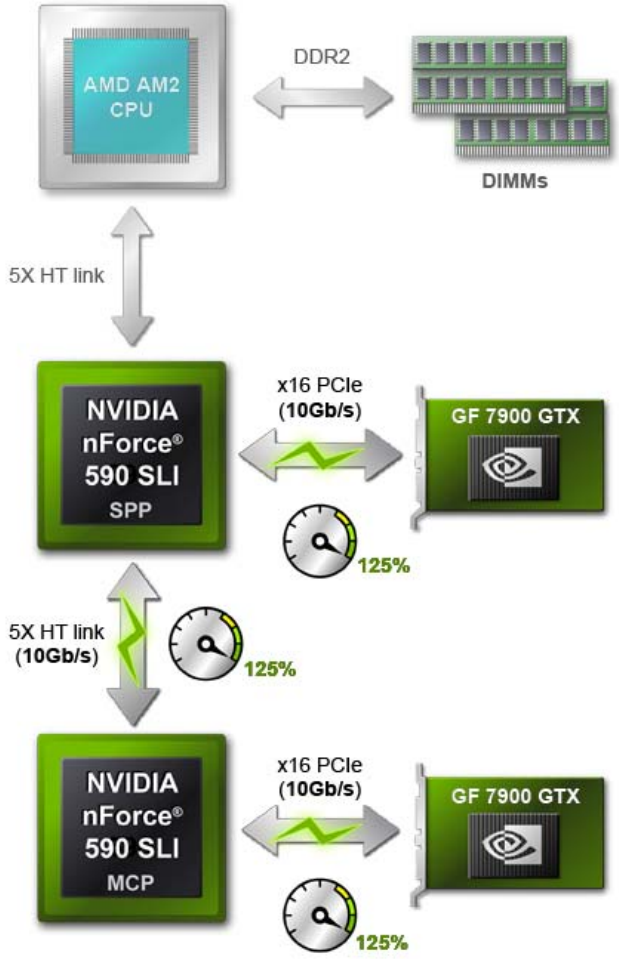

Figure 2. NVIDIA LinkBoost Technology

Benefits

In today's computer systems, higher bus speeds lead to improved overall system performance. Operating PCI Express and MCP HyperTransport buses at 25 percent higher rates increases the available interconnect bandwidth from 8 gigabytes per second (GBps) to 10 GBps.

LinkBoost does not require an NVIDIA SLI–enabled system configuration. The increased PCI Express and MCP HyperTransport bandwidth makes higher data transfer rates across the links possible, allowing more data packets to be transmitted at any time.

Furthermore, a significant benefit of LinkBoost technology is that it is automatically activated without user intervention when LinkBoost-enabled GPUs are used, providing higher bus speeds out-of-the-box.

Conclusion

NVIDIA LinkBoost is a technological advancement that unleashes the additional throughput capability of select NVIDIA nForce MCPs and GeForce GPUs.

The many benefits of LinkBoost are:

- "Guaranteed overclockability": Certified bus performance, providing significantly higher PCI Express and HyperTransport interconnect bandwidth. Users can manually overclock beyond LinkBoost settings.
- Plug and Play: Out-of-the-box increase in bus speeds without user intervention, which is good for those who don't like to tweak settings.
- Future proof: Higher bandwidth that can only help gaming performance as games and GPU enhancements (software and hardware) evolve to demand additional bandwidth.

NVIDIA LinkBoost technology is yet another part of a complete NVIDIA nForce 590 SLI solution that is engineered for enthusiasts.

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