



# Mini White Paper

HP Workstations

May 2007

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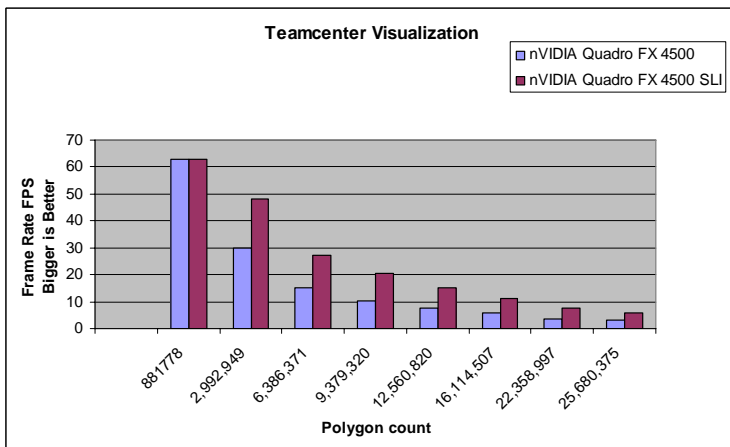
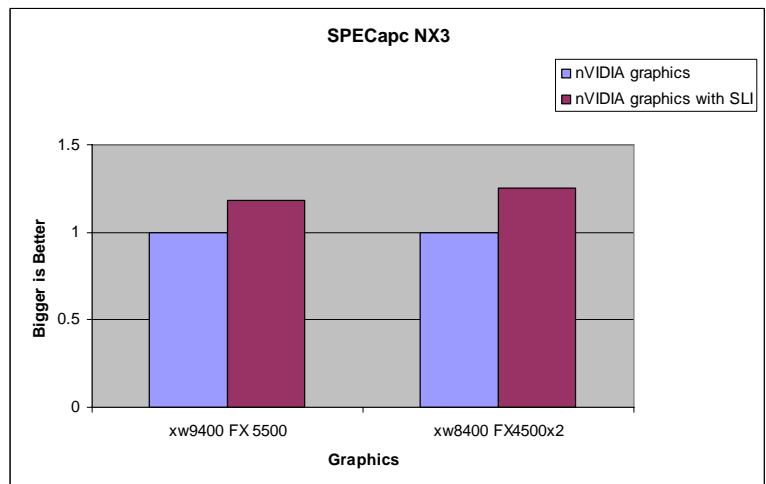


## Maximize NX and Teamcenter Visualization Graphics Performance with SLI Technology

**Summary:** UGS PLM Software recently certified the nVIDIA Quadro FX 4500x2 and Quadro FX 5500 with Scalable Link Interface (SLI) technology on the Hewlett-Packard xw8400 and xw9400 Workstations. For users of NX or Teamcenter Visualization using graphics intensive operations, nVIDIA SLI technology delivers maximum performance.

**Background:** SLI Frame Rendering combines two PCI Express graphics cards to transparently scale application performance on a single display. The Quadro FX 4500x2 is architected with two nVIDIA Quadro FX 4500 graphics processing units (GPUs) which allows it to be installed into the single x16 PCI-E slot in the xw8400. The xw9400 has two x16 PCI-E slots that allow two Quadro FX 5500 graphics to be installed and connected together with an SLI connector. When the recently certified nVIDIA graphics driver is configured to use SLI, it automatically presents the graphics as a single card to the operating system and applications. NX and Teamcenter Visualization run as if only one graphics device is installed and for most cases, graphics intensive operations result in increased performance. When SLI is disabled, only a single graphics GPU is used taking advantage of only one of the graphics devices (or GPU) installed.

**Results:** The specAPC NX benchmark and UGS Teamcenter Visualization standard Frame Rate benchmarks were used to measure SLI graphics performance. The specAPC benchmark generates results for graphics, CPU and disk I/O operations of NX3. The operations include loading parts, rotations, zooms, pans, front and back clipping, modifying perspective parameters, full view regeneration and different edge modes. Performance gains with SLI were 1.18x-1.25x faster. The Teamcenter Visualization benchmark was set up to measure the frames per second with a large dataset that has different size parts with increasing number of polygons. The Teamcenter Visualization benchmark did show that with SLI enabled, the most common case of users obtained about double the performance. However, as the polygon count increased and more memory was utilized, performance gains with SLI decreased.



Note – The Teamcenter Visualization benchmark was run by a UGS engineer on an older xw9300 with two FX 4500 graphics and SLI connector. It is expected that performance on the newly certified xw8400 with Quadro FX 4500x2 will show similar results.

**Conclusion:** nVIDIA SLI technology provides increased graphics performance with UGS NX and Teamcenter Visualization when using operations that are graphics intensive.