

NETWORK SUPERCOMPUTER

VIRTUAL ENGINES and AUTOMATED DESIGN users can now apply parallel-processing technology to their engine design problems with OPTIMUM's NETWORK SUPERCOMPUTER. This innovative software product utilizes desktop Windows PCs to:

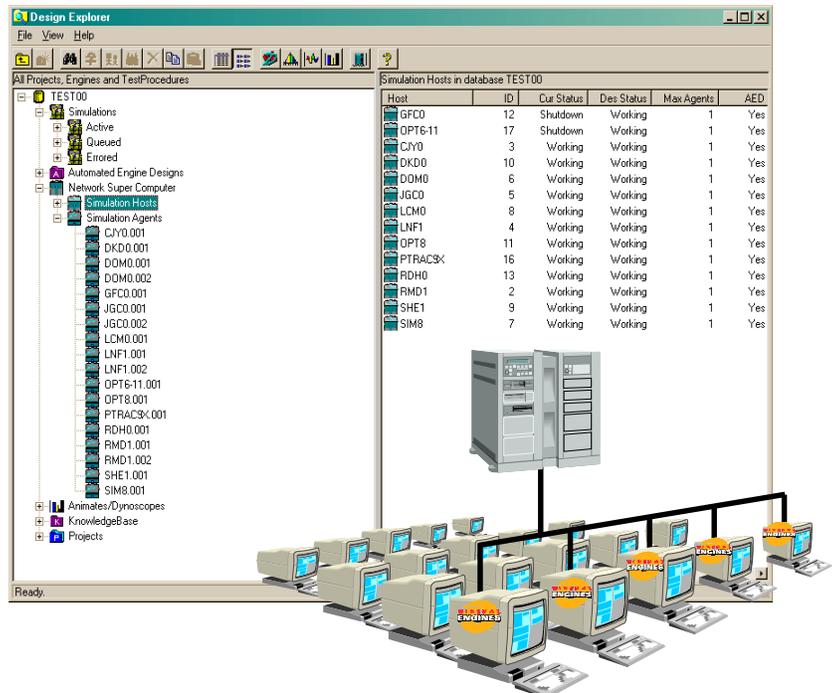
- ❑ Deliver computation power equivalent to a supercomputer with no incremental hardware costs
- ❑ Apply this powerful underused computing resource to solve engine design problems orders of magnitude faster than currently possible.

There is no limit to the number of PC's that can be used by this parallel-processing environment, allowing the supercomputer to scale as your needs and business grow.

This technology has been developed by OPTIMUM over the last decade to provide inexpensive (24 by 7) computing power for their advanced design systems. It utilizes two or more VIRTUAL ENGINES Simulators and the MULTI-USER DESIGN DATABASE to create a computing environment that will literally transform the way that you design engines.

It works by designating one PC as the NETWORK SUPERCOMPUTER server. VIRTUAL ENGINES or AUTOMATED DESIGN are installed on this machine. Next, the MULTI-USER DESIGN DATABASE is installed on the same PC or a different one if desired. Based on the number of VIRTUAL ENGINES Simulators that have been licensed, other network PC's can be configured to be simulation clients. All PC's communicate directly with the supercomputer server and the database. This whole installation process can be completed in a matter of minutes without any additional hardware!

The Simulators run continuously in the background on each client PC. When there are no engines to be modeled,



the Simulators simply idle, using no processor time. When there is work to be done, the Simulator uses only the clients' surplus processing power. Whenever a desktop user application needs the processor, the Simulator is preempted. The result is that the desktop PC users perceive no degradation of their workstations performance.

The status of each supercomputer client can be easily viewed with the Design Explorer. Designers submit all simulation tasks, rpm sweeps, parametric mappers and AUTOMATED DESIGNS, to be processed by the supercomputer. The supercomputer server gives each designer priority access to his or her own workstation and then distributes the rest of the work to available clients according to priorities specified by design management.

The NETWORK SUPERCOMPUTER can accelerate your design projects by several orders of magnitude. Consider a simple example. A 4-variable optimization on a single cylinder 4-stroke exhaust pipe was conducted on a 10-PC NETWORK SUPERCOMPUTER. A total of 640 alternative engine designs were assessed in less than 4 hours. The same optimization required nearly 40 hours on a single PC!