

## ABSTRACT

## VLSI AND HIGH PERFORMANCE COMPUTERS

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This talk will outline three items concerned with the application of VLSI to high performance computing machines. These are:

1. Direction of VLSI and System Design Variables.
2. Systems Design Options.
3. Technological problems in building a VLSI machine.

Item one will summarize trends in bits per chip for memories and circuits per chip.

Item two will briefly review design options available to large system designs as a result of the forthcoming high degree of integration (i.e., improved machine organization, increased instruction concurrency, new subsystem concurrency).

Item three will outline some key VLSI technology problems relevant to VLSI machine design. Examples are:

Pins, packaging and performance interactions;  
switching noise and technology limitations;  
design automation problems and requirements.