Invited Participant Database:

Name

Name preferred on name tag

Title

Organization

Street Address

City State Zip

Citizenship: If foreign, Birthdate

Birthplace: City Country

Office Phone

Fax

Email

Specific Interest

- ☐ Computation Systems and Software
- ☐ Calculational Applications
- ☐ Defense System Applications
- ☐ Civilian System Applications
- ☐ Strategy and Policy Indications

Participant's data are due by November 12. No fee is charged; meals will be provided. Send information to:

Karen Kimball
Lawrence Livermore National Laboratory
Center for Global Security Research
PO Box 808, L-189
Livermore, CA 94551
Fax: 925-422-5252
Fon: 925-422-6141

CGSR
Center for Global Security Research

A Global Security Futures Project

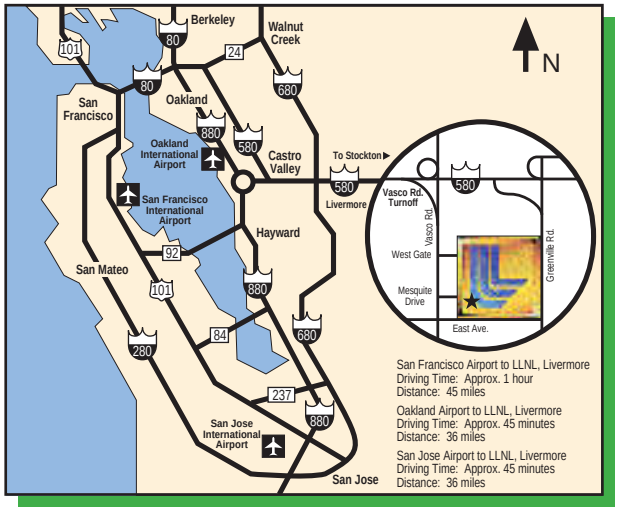
The Center for Global Security Research, in collaboration with other security study centers, probes issues at the intersection of technology and policy, accessing the significant technical capabilities of the Lawrence Livermore National Laboratory. While most of our projects focus on issues of current international security concern, this futures project looks out beyond the next decade in order to guide current actions toward a more secure world.

Conference Location

December 8-10, 1999
Lawrence Livermore National Laboratory
7000 East Avenue
Livermore, CA 94551

For further information contact

Karen Kimball
925-422-6141
Kimball2@llnl.gov



CGSR
B1433

Beyond Moore's Law

Opportunities and Threats from Future, Ubiquitous, High-Performance Computing

Conference

December 8-10, 1999
Livermore, California

A Global Security Futures Project
sponsored by the

CGSR
Center for Global Security Research
Lawrence Livermore National Laboratory

Beyond Moore's Law

Opportunities and Threats from Future, Ubiquitous, High-performance Computing

A Global Security Futures Project

Hosted by:

Ronald F. Lehman II, Director
Center for Global Security Research
Lawrence Livermore National Laboratory

Invited Participants:

Participants knowledgeable of computer systems and the future that they will enable are being invited from US government agencies, national laboratories, research universities, research centers and institutes, and industry.

For Information

T. J. Gilmartin
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925-422-9793
925-422-5252 (fax)
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Lawrence Livermore National Laboratory
PO Box 808, L-189
Livermore, CA 94550

Conference Interaction Web Site

http://cgsr.llnl.gov/

Context and Purpose

The relentless improvement in computer performance and cost, first quantified by Gordon Moore three decades ago, is now predicted to continue for at least another decade. If true, low cost, teraflop commercial computer systems will be widely available; and high-end number crunchers will operate above 1,000 teraflops. Although the largest calculational problems, such as detailed simulations of galactic evolution, global weather, and atomic-scale DNA reactions, may still be beyond reach, most calculations, even those of significant concern for national security reasons will be easily accessible.

Furthermore, the calculational advantages of computers will be superceded by their use for higher levels of integration, data and sensor management and interpretation, cognition, autonomous agency, communication in more human modes, and ever more realistic presentations. Beyond their technological prowess, computers will be a vehicle and driver of globalization, transforming the way that societies are organized, marketed, ruled, and assaulted. On the one hand, these are the future's opportunities for creating a more free and civilized world, and on the other, they present new challenges for personal, corporate, national, and international security. The purpose of this project is to raise awareness on a broad front of the future world of computer systems and to indicate potential benefits and threats.

Questions

Our method is to address specific questions to define what we know, what we do not know or cannot agree on, and what is needed to resolve the unknowns.

Technology

What might computer appliances and software be expected to do after another decade and what unexpected technological capabilities might emerge?

Calculation

What calculational problems will be accessible: simulations of metals, plasmas, and organic molecules from the atomic scale; cells to ecological systems; chaotic systems, climate, and weather; large physics systems, from weapon physics to astrophysics?

Defense Systems

What will complex synergistic systems be able to do, combining calculations, human-like interaction, use large data bases, real-time sensor systems, autonomous and assisted decisionmaking...in the areas of weapon design and control, missile defense, anti-submarine warfare, intelligence analysis, information warfare, cryptology, system control, conflict management, and emergency response?

Civilian Systems

What will these capabilities mean for security more broadly defined in commerce, infrastructure and energy system management, transportation, and even agriculture and manufacturing?

Strategy and Policy Indications

What should the US do to better understand, anticipate, and act on security issues that arise in this new world?

Exploratory Seminars

A series of informal seminars is being conducted to elaborate these questions and issues, identify key thinkers, and prepare input for the final conference.

Web Site Interaction

As ideas are developed and the details of the conference content are set, these will be posted at: http://cgsr.llnl.gov/
Those planning to participate in the conference in December are encouraged to comment on these postings.

Conference

December 8-10, 1999
Livermore, California

The conference format will be interactive with presentations by panels of invited speakers followed by discussion between the participants and the panelists on each of the questions. Summaries of the panel findings will be presented on the third day to a group of distinguished national leaders and experts who will be asked both to elaborate these findings and to participate in a predictive exercise. The goal is to clarify the debate, formulate specific predictions useful for defining national strategy and policy, and identify the highest priority elements for future work.

Classification

The conference will be unclassified.