Revised 3/18/84
Letter from Chairman of Task Force

SUBJECT: Final Report of the Task Force on
Military Applications of New-Generation Computing Technologies.

Enclosed is the Final Report of the Defense Science Board
Task Force on Military Applications of New-Generation Computing
Technologies. The Report addresses all of the items recommended
by Dr. DeLauer in his letter of January 20, 1983, establishing
the Task Force. As you are aware, the full Defense Science Board
was briefed on the study and was presented the Findings and

These new technologies embrace hardware developments:
very large scale integration, materials like gallium arsenide,
and ingenious new architectures for computers taking advantage
of parallelism on an unprecedented scale. It is widely
recognized that existing machine structures are approaching
limits imposed by the laws of physics, and that the continued
growth of computing capability at ever lower cost will not be
possible without such innovations. We accept that perspective,
but did not ourselves undertake a review of the technology base,
which did not lie within our charter. We did focus on the
software opportunities, mainly those labelled under the heading
of 'machine intelligence' and the military applications these
would enable.

The Services and DoD Agencies have some pioneering
research in these technologies. It is impressive in vision but
limited in scope. The Task Force hopes that this study may help
give these programs the stimulus and visibility needed to
support that research and effect its successful transition into
operational testing, demonstration and use. The Task Force is
also recommending some applications which cut across all the
Services and which are on a scale that no one Service is likely
to address.

The Defense Advanced Research Projects Agency (DARPA)
program on 'Strategic Computing' is the principal vehicle
for building the groundwork of these applications. Our report
discusses requirements for relating that program to military
requirements, so as to ensure the most prompt and efficient
utilization of these technological advances.

Our Task Force is most grateful to the many people in
the Department, the Services, Industry, and Academia who
extended themselves in preparing many fascinating presentations
and in bearing with our numerous and uninhibited questions.

Joshua Lederberg
Chairman