

Opening Address

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Ladies and gentlemen, distinguished guests, good morning. I am sincerely grateful to find so many persons, both from countries around the world and from various parts of Japan, in attendance at this International Conference on Fifth Generation Computer Systems 1988. I would also like to thank the eminent persons from various circles who have honored us with their presence, among them Parliamentary Vice-Minister Kurata of the Ministry of International Trade and Industry (MITI); Director-General Tanahashi of the MITI's Machinery and Information Industries Bureau; and President Kuranari of the Congressional Federation for the Promotion of Informaiton Industry.

Looking back on the history of fifth generation computer research, it was exactly seven years ago, in October of 1981, that research themes and plans aiming at the realization of a fifth generation computer by Japanese scientists were first announced, and the International Conference on Fifth Generation Computer Systems 1981 was held.

Based on the results of this conference, the ten-year Fifth Generation Computer Systems project was initiated by MITI in April of 1982, with the enthusiastic support

and cooperation of numerous individuals and organizations in government, academia, and industry. It was this Institute which assumed responsibility for execution of the project.

In November 1984, International Conference on Fifth Generation Computer Systems 1984 was held, for the purpose of reporting the results of basic research achieved in the initial three-year stage.

This conference is the third of its kind, and coincides with the fourth and last year of the intermediate stage of the project.

The central aim of the intermediate stage of research and development was to lay the foundations for full-fledged parallel processing systems, something never before attempted on a large scale. Another important goal of our work was the accumulation of software resources and expertise for the development of intelligent software programs based on inference mechanisms. As the parallel processing hardware, an experimental parallel inference machine has been completed, incorporating 64 processors, and a demonstration parallel operating system, which will serve as the core of the parallel processing software resources, has begun to run on this hardware system.

Work is now underway to trial-fabricate a parallel inference machine,

consisting of 128 more powerful processors and our initial goals have nearly been achieved.

Research on intelligent software has culminated in the development of a system for natural language understanding, various expert systems, and a system for theorem-proving and other mathematical operations.

At this conference, we would like for all participants to observe for themselves these intermediate stage research results; and for this purpose more than thirty separate demonstrations have been scheduled.

The final stage of research, to begin next year, will aim at the development of a fifth generation computer prototype comprising approximately 1000 processors, a fully functional parallel operating system running on this hardware, and a knowledge programming system and other tools.

The research center of the Institute for New Generation Computer Technology, or ICOT, are staffed by about 100 young researchers, on loan from both government research laboratories and from the corporate laboratories of computer manufacturers. Research and development under this project is being carried out with the cooperation of numerous researchers from related industries and organizations.

Moreover, research and development is guided by an advisory group, made up of specialists from the government, academic and industrial sectors.

ICOT has performed research and development under commission by MITI with a budget of 8.2 billion yen for the initial three-year stage.

In the intermediate stage, ICOT has carried out R&D with a budget of 4.7 billion yen in 1985; 5.5 billion yen in 1986; 5.6 billion yen in 1987; and 5.7 billion yen in 1988, for a total of 21.5 billion in the four years of the intermediate stage.

Overseas as well, countries in Europe and America are vigorously promoting projects, under government direction, for the establishment of fifth generation computer technology. ICOT also emphasizes international exchanges, and makes every effort to facilitate such intercourse, including admission for foreign researchers for extended periods.

At this international conference, we intend to introduce the results of research in the intermediate stage, as well as provide a forum both for presentations by researchers from Japan and abroad and for exchange of opinions.

On this occasion I would like to express my warm thanks to Professor Hideo Aiso, Organizing Committee Chairman, Professor Hidehiko Tanaka, Program Committee Chairman, Ms. Kinko Yamamoto, Publicity Committee Chairperson, and all the other persons on the Organizing and other committees who selflessly devoted their time and energy to planning and preparation for this conference. I am also deeply grateful to numerous persons affiliated with learned societies and other organizations for their generous support.

It is my fervent hope that through the synergy and lively exchange of information by the many participants, this international conference will prove a fruitful exercise for all concerned, and will not only lead to steady progress in the total system development to be conducted in the last stage of the project, but will also contribute greatly to further advances in information processing in other countries as well.

Thank you very much for your kind attention.