GRAPE Project
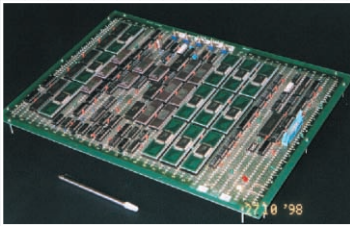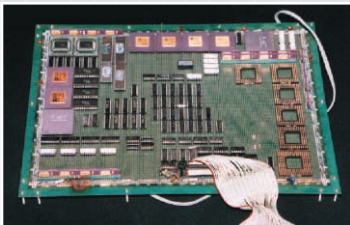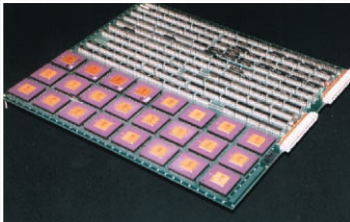## University of Tokyo, 1988-
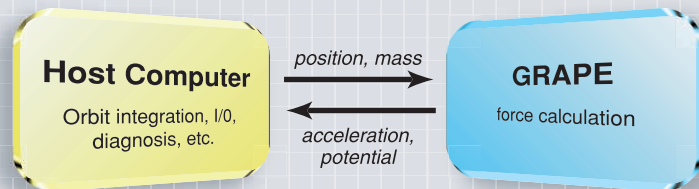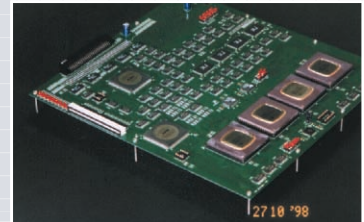

GRAPE-1

GRAPE project started in 1988 by a group of astrophysists in the University of Tokyo. Its goal is to accelerate astrophysical N-body simulations. Since almost all computing time is spent to the calculation of interaction between particles, they adopted an hybrid architecture consisting of specialized processor for interaction calculation (GRAPE, GRAvity PipE) and general-purpose workstation.

GRAPE-2

Host Computer
Orbit integration, I/0, diagnosis, etc.

position, mass

acceleration, potential

GRAPE
force calculation

GRAPE-3

GRAPE-4

GRAPE-5

Year	Machine	Performance	# pipelines
1989	GRAPE-1	240 MFLOPS	1
1989	GRAPE-2	40 MFLOPS	1/3
1991	GRAPE-3	14.4 GFLOPS	48
1995	GRAPE-4	1.08 TFLOPS	1728
1999	GRAPE-5	44 GFLOPS/board	16
2001	GRAPE-6	32 TFLOPS	6144

GRAPE-6