

SC13 25th Anniversary

Fujitsu's Contribution to HPC

Numerical Wind Tunnel (NWT)

- Co-developed with National Aerospace Laboratory of Japan (now JAXA)
- Pioneer of parallel computing on distributed memory architecture
- VPP series derived from NWT dominated the global HPC market, including ECMWF, METEO FRANCE, EDF, CEA, Airbus, ONERA, SNECMA, CNRS-IDRIS and Australian National University
- Achievements
 - #1 on Top500: 11/1993, 11/1994 to 12/1995
 - Gordon Bell Prize: 1994, 1995 and 1996



Photo Courtesy of JAXA

Numerical Wind Tunnel (NWT)

■ Specifications

NWT

Number of Processing Elements (PE)		166
Interconnect		Crossbar
Main Memory		44.5 GB (256 MB/PE)
Clock Speed		9.5 ns (105 MHz)
Performance	Rpeak	235.79 GFlops
	Rmax (11/1993)	124.00 GFlops
	Rmax (11/1994)	170.00 GFlops

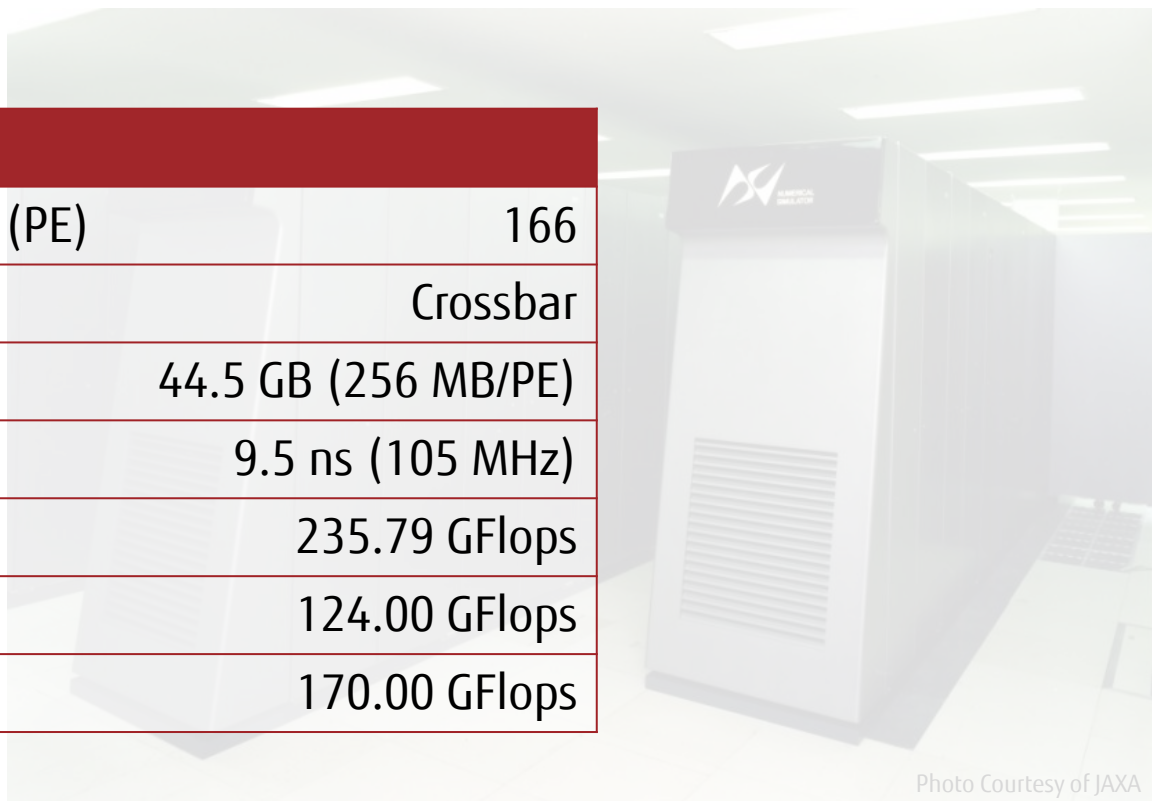


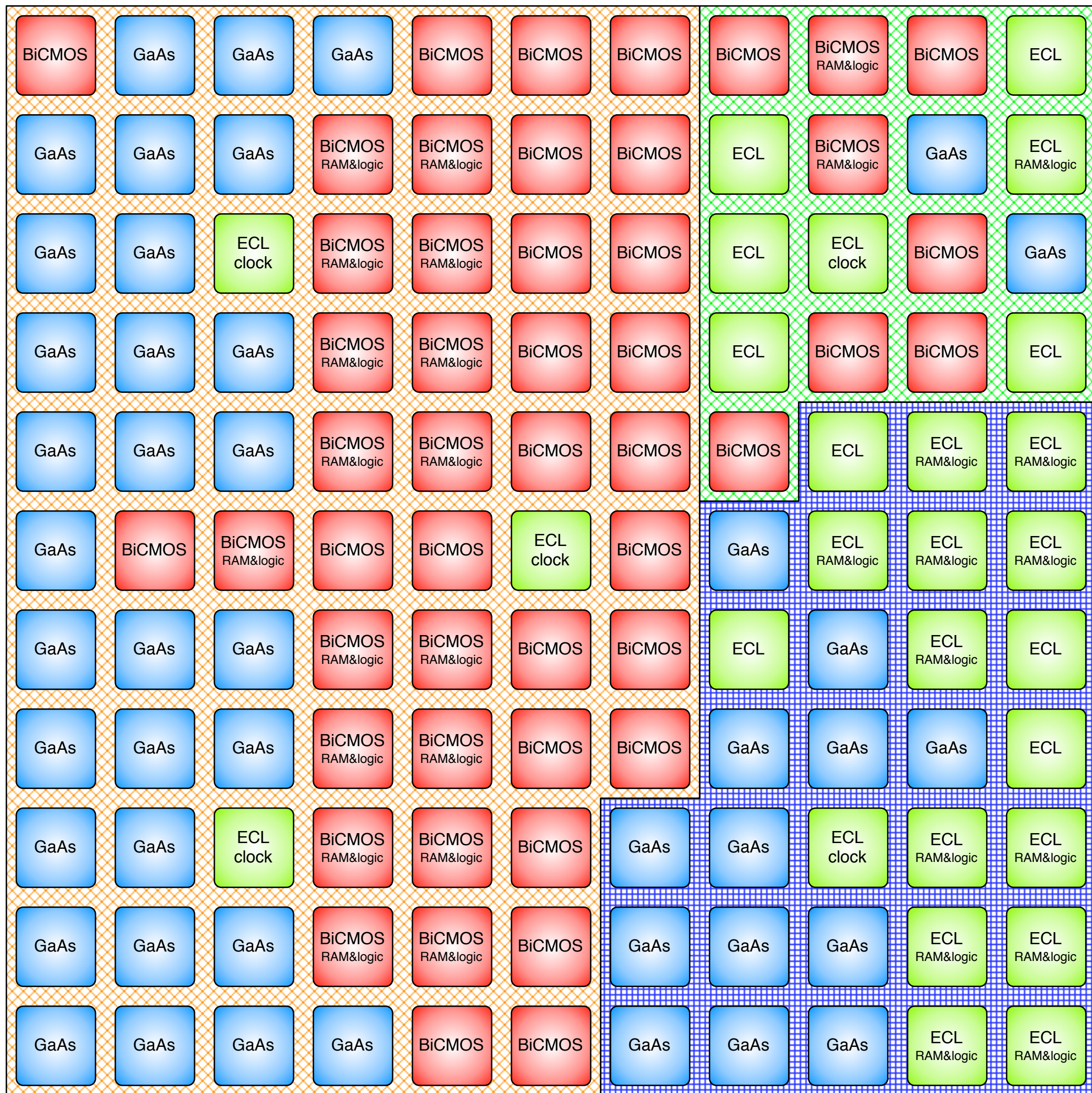
Photo Courtesy of JAXA

NWT/VPP-500
LSI map

Vector Unit

Data Mover

Scalar Unit



Numerical Wind Tunnel (NWT)



Photo Courtesy of JAXA

FACOM M-190



- Announced in Nov. 1974 as the world's first fully LSI-based mainframe
- Amdahl 470V/6 was jointly developed by Amdahl and Fujitsu, based on the same technology
- Both were recognized for superior performance with small footprint
- The first two systems of Amdahl 470V/6 were delivered to NASA and the University of Michigan, causing a news sensation in both U.S. and Japan

FACOM M-190



■ Specifications

FACOM M-190

Number of CPUs	1 or 2
----------------	--------

Main Memory	Max. 16 MB
-------------	------------

Execution Speed	
-----------------	--

Fixed-Point Number	Add / Sub	60 ns (16.6 Mops)
--------------------	-----------	-------------------

Mul	210 ns (4.76 Mops)
-----	--------------------

Div	1,530 ns (65.3 Kops)
-----	----------------------

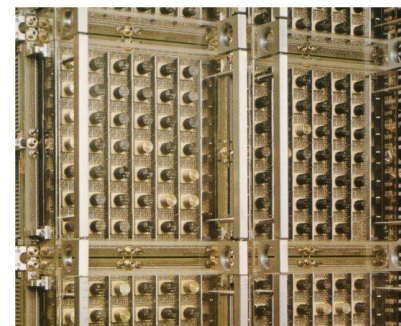
FACOM M-190



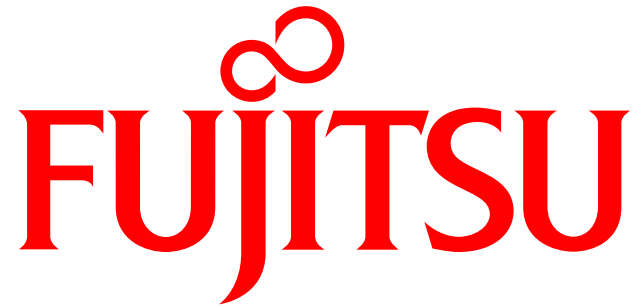
FACOM M-190



Amdahl 470V/6



MCCs in the cabinet



shaping tomorrow with you