

NCAR established
in 1960

1960

IBM 709

Used in: 1962
Clock speed: 0.667 MHz (2.5 μs)
Peak FLOPS: 5K
Word size: 36-bit
Memory: 32 KBytes
Notes: Vacuum-tube CPU.
University of Colorado machine
on which NCAR purchased time.

IBM 7090

Used in: 1962
Clock speed: 0.167 MHz (6 μs)
Peak FLOPS: 210K
Word size: 36-bit
Memory: 32 KBytes
Notes: Fully transistorized CPU.
NCAR purchased time from the Boulder
branch of the National Bureau of Standards.

IBM 1620

Used in: 1963
Clock speed: 0.1MHz (10 μs)
Peak FLOPS: 300K (est.)
Word size: 6-bit
Memory: 40K decimal
Notes: NCAR purchased
time on this machine from the
High Altitude Observatory (HAO).

Control Data Corporation (CDC) 3600

Acquired: 1963
Clock speed: 0.7 MHz (1.4 μs)
Peak GFLOPS: 0.0013
Word size: 48-bit
Memory: 32 KBytes
Decommissioned: 1966
Notes: First machine owned
and used by NCAR. Seymour Cray
designed the circuitry.

Computing Facility
created in 1964

CDC 6600

Acquired: 6/1/1966
Clock speed: 10 MHz (100 ns)
Peak GFLOPS: 0.01
Word size: 60-bit
Memory: 64 KBytes
Decommissioned: 5/1/1977
Notes: Three times the speed
of the CDC 3600.

1970

CDC 7600

Acquired: 7/1/1971
Clock speed: 36 MHz (27.5 ns)
Peak GFLOPS: 0.0364
Word size: 60-bit
Memory: 65.5 KBytes
Decommissioned: 4/1/1983
Notes: Five times the speed
of the CDC 6600

CRAY 1-A (Serial #3)

Acquired: 7/1/1977
Clock speed: 80 MHz (12.5 ns)
Peak GFLOPS: 0.160
Word size: 64-bit
Memory: 8 MBytes
Decommissioned: 1/1/1989
Notes: First vector computer.
Ran 4.5 times the speed of the
CDC 7600. Particularly well-
adapted to advance modeling of
climate and severe storms.

1980 **Computing Facility renamed
Scientific Computing Division
(SCD)**

CRAY 1-A (Serial #14)

Acquired: 5/1/1983
Clock speed: 80 MHz (12.5 ns)
Peak GFLOPS: 0.160
Word size: 64-bit
Memory: 8 MBytes
Decommissioned: 5/1/1986
Notes: Replaced the CDC 7600.
Serial #14 now resides in the
Air and Space Museum of the
Smithsonian Institution in
Washington, DC.

CRAY X-MP/48

Acquired: 10/1/1986
Clock speed: 118 MHz (8.5 ns)
Peak GFLOPS: 0.941
Word size: 64-bit
Memory: 64 MBytes
Decommissioned: 5/1/1990
Notes: The X-MP/48 featured new
"multiprocessor" architecture, housing
four processors in one cabinet. This
opened the door to parallel
execution of models.

Thinking Machine Corporation (TMC) CM-2 (capitol)

Acquired: 9/1/1988
Clock speed: 7 MHz (142.85 ns)
Peak GFLOPS: 7.168
Word size: 32-bit
Memory: 1 Gbyte
Decommissioned: 4/1/1993
Notes: Connection Machine had
8,192 processors.

1990

CRAY Y-MP8/864 (shavano)

Acquired: 6/1/1990
Clock speed: 167 MHz (6 ns)
Peak GFLOPS: 2.667
Word size: 64-bit
Memory: 512 MBytes
Decommissioned: 6/30/1997
Notes: The Y-MP was NCAR's flagship
computer for seven years

CRAY Y- MP2 (castle)

Acquired: 7/16/1991 and 6/1/1994
Clock speed: 167 MHz (6 ns)
Peak GFLOPS: 2.667
Word size: 64-bit
Memory: 512 MBytes
Decommissioned: 9/1/1994 and 12/1/1996

Notes: These two machines were dedicated
to the NCAR Climate Simulation Lab,
as was the CRAY C90/16.

IBM RS/6000 Cluster

Acquired: 2/1/1992
Clock speed: 66 MHz (15.15 ns)
Peak GFLOPS: 0.132/node
Memory: 512 MBytes/node
Decommissioned: 9/1/1997
Notes: Compute nodes
were named arapahoe,
commanche, navajo, and chief.

TMC CM-5 (littlebear)

Acquired: 3/1/1993
Clock speed: 32 MHz (31.25 ns)
Peak GFLOPS: 4.096
Word size: 64-bit
Memory: 1 GByte
Decommissioned: 11/1/1996
Notes: This Connection Machine
had 32 processors.

IBM SP 1/8 (eaglesnest)

Acquired: 8/1/1993
Clock speed: 62 MHz (16.1 ns)
Peak GFLOPS: 0.26/node
Memory: 64 MBytes
Decommissioned: 9/1/1995
Notes: An experimental, parallel
processing computer with eight nodes.

CRAY T3D/64

Acquired: 7/1/1994
Clock speed: 150 MHz (6.67 ns)
Peak GFLOPS: 19.190
Word size: 64-bit
Memory: 8 GBytes
Decommissioned: 6/1/1999
Notes: Massively parallel system
upgraded to 128 processors. Tightly
coupled to the CRAY Y-MP8I and
C90 (antero).

CRAY-3 (graywolf)

Acquired: 10/1/1993
Clock speed: 500 MHz (2.0 ns)
Peak GFLOPS: 4.0
Word size: 64-bit
Memory: 1 GByte
Decommissioned: 3/25/1995
Notes: Gallium arsenide chips
instead of silicon; fastest computer
then available.

CRAY C90/16 (antero)

Acquired: 1/1/1997
Clock speed: 244 MHz (4.1 ns)
Peak GFLOPS: 15.610
Word size: 64-bit
Memory: 1 GByte
Decommissioned: 11/30/1999
Notes: Dedicated to extensive climate
simulations and was a four-fold increase
in computing power for the
Climate Simulation Lab.

CRAY J90s

Acquired: 4 machines, 1995–1998
Clock speed: 100 MHz (10 ns)
Peak GFLOPS: 4 to 4.8
Word size: 64-bit
Memory: 256 MWords to 1024 MBytes
Decommissioned: 6/30/2000–9/3/2002
Notes: Named aztec, paiute, ouray
and chipeta. Parallel vector
processors from SGI/Cray Research.

Hewlett-Packard (HP)

Exemplar SPP 2000/64 (sioux)
Acquired: 5/1/1997
Clock speed: 180 MHz (5.55 ns)
Peak GFLOPS: 46.08
Word size: 64-bit
Memory: 8 GBytes
Decommissioned: 5/1/1999

Notes: 64 processors, 4 hypernodes
used to study performance
of algorithms on distributed shared
memory machines.

SGI Origin 2000/128 (ute)

Acquired: 6/1/1998
Clock speed: 250 MHz (4.0 ns)
Peak GFLOPS: 64.0
Word size: 64-bit
Memory: 16 GBytes
Decommissioned: 7/15/2002

Notes: 128 super-scalar processors
especially suited for long-running,
highly parallel jobs.

Compaq ES40 (prospect)

Acquired: 11/1/1999
Clock speed: 500 MHz (2.0 ns)
Peak GFLOPS: 32.0
Memory: 8 GBytes
Decommissioned: 2/19/2002

Notes: Distributed shared-memory
system with eight nodes.

IBM RS/6000 SP (blackforest)

Acquired: 7/1/1999
Clock speed: 200 MHz (5.0 ns)
Peak GFLOPS: 236.0
Memory: 296 GBytes
Decommissioned: 5/13/2000
Notes: 148 Winterhawk-I nodes.

2000

IBM SP/604 (blackforest)

Acquired: 5/13/2000
Clock speed: 375 MHz (2.67 ns)
Peak GFLOPS: 906.0
Memory: 302 GBytes
Decommissioned: 10/26/2001
Notes: 151 Winterhawk-II nodes.

NCAR ARCS

IBM SP/1308 (blackforest)
Acquired: 10/26/2001
Clock speed: 375 MHz (2.67 ns)
Peak GFLOPS: 1,962.0
Memory: 702 GBytes
Notes: 318 Winterhawk/Nighthawk-II
nodes. NCAR's flagship Advanced Research
Computing System (ARCS)

SGI Origin 3800/128 (chinook)

Acquired: 7/15/2002
Clock speed: 500 MHz (2.0 ns)
Peak GFLOPS: 128.0
Memory: 64 GBytes
Notes: Replaced ute with twice the clock
speed and four times the memory.

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Anderson, Dan, Technical Consulting
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Jenne, Roy, Data Support
Lester, Lynda, Digital Information
Loft, Richard, Computational Science
Merrill, John, Mass Storage
O'lear, Bernard, Administration
Valent, Richard, User Support

Design and research: Gregory McArthur, Ph.D.
SCD Digital Information Group

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