
CRAY

1
00:00:15,540 --> 00:00:13,500
when aeronautical engineers want to know

2
00:00:18,090 --> 00:00:15,550
how air will flow over one of their

3
00:00:20,370 --> 00:00:18,100
designs they can build a model and test

4
00:00:22,800 --> 00:00:20,380
it in a wind tunnel but thanks to

5
00:00:25,679 --> 00:00:22,810
today's supercomputers like this Cray

6
00:00:27,870 --> 00:00:25,689
XMP there's a less costly less

7
00:00:31,140 --> 00:00:27,880
time-consuming way to evaluate their

8
00:00:33,270 --> 00:00:31,150
ideas these ultra-fast machines with

9
00:00:35,090 --> 00:00:33,280
incredibly large memories make it

10
00:00:37,470 --> 00:00:35,100
possible to do timely accurate

11
00:00:40,200 --> 00:00:37,480
simulations before committing to

12
00:00:42,660 --> 00:00:40,210
expensive hardware and it's not just air

13
00:00:44,580 --> 00:00:42,670

flow that can be studied here the flow

14
00:00:47,810 --> 00:00:44,590
of water around a submarine is being

15
00:00:52,540 --> 00:00:49,730
even the flow of fuel through the

16
00:00:55,070 --> 00:00:52,550
shuttles main engines can be examined

17
00:00:57,170 --> 00:00:55,080
recently scientists producing these

18
00:00:59,840 --> 00:00:57,180
simulations at NASA's Ames Research

19
00:01:02,770 --> 00:00:59,850
Center in Mountain View California began

20
00:01:04,939 --> 00:01:02,780
using a new supercomputer the Cray two

21
00:01:07,850 --> 00:01:04,949
though much smaller than the previous

22
00:01:11,000 --> 00:01:07,860
generation great it's faster than any

23
00:01:14,300 --> 00:01:11,010
computer in the world performing 250

24
00:01:17,000 --> 00:01:14,310
million calculations per second it also

25
00:01:20,570 --> 00:01:17,010
has 10 times more memory than any

26
00:01:22,520 --> 00:01:20,580
existing machine in fact the cray 2 is

27
00:01:24,200 --> 00:01:22,530
so powerful that its circuitry is

28
00:01:26,650 --> 00:01:24,210
continually immersed in a cooling

29
00:01:28,880 --> 00:01:26,660
solution to keep it from overheating

30
00:01:31,100 --> 00:01:28,890
putting this new supercomputers

31
00:01:33,410 --> 00:01:31,110
capabilities into proper perspective is

32
00:01:35,920 --> 00:01:33,420
the manager of the numerical aerodynamic

33
00:01:39,020 --> 00:01:35,930
simulation program at Ames Ron Baker

34
00:01:40,880 --> 00:01:39,030
what you see in this this small tank of

35
00:01:45,140 --> 00:01:40,890
liquid in the crate who is equivalent to

36
00:01:47,030 --> 00:01:45,150
a warehouse a small home computer the

37
00:01:49,609 --> 00:01:47,040
crate - makes more comprehensive

38
00:01:51,020 --> 00:01:49,619

simulations possible for example the

39
00:01:53,000 --> 00:01:51,030
people at Ames have been able to

40
00:01:55,910 --> 00:01:53,010
simulate airflow around the shuttle

41
00:01:57,950 --> 00:01:55,920
orbiter itself but the orbiter attached

42
00:01:59,130 --> 00:01:57,960
to the solid rocket boosters large

43
00:02:01,500 --> 00:01:59,140
external fuel

44
00:02:04,649 --> 00:02:01,510
as opposed to great a problem for any

45
00:02:08,120 --> 00:02:04,659
computer today ames research scientist

46
00:02:10,919 --> 00:02:08,130
and he shows you but with the cray-2

47
00:02:13,710 --> 00:02:10,929
becoming accessible to us that will give

48
00:02:15,870 --> 00:02:13,720
us enough storage or memory where we can

49
00:02:18,690 --> 00:02:15,880
actually solve the flow around this

50
00:02:21,150 --> 00:02:18,700
whole configuration and in some cases it

51
00:02:23,550 --> 00:02:21,160
may be very important to see what that

52
00:02:25,890 --> 00:02:23,560
flow is in order to maybe be able to

53
00:02:30,000 --> 00:02:25,900
take safer routes when the thing is

54
00:02:34,770 --> 00:02:32,220
the cray-2 will also play a key role in

55
00:02:37,890 --> 00:02:34,780
technology development for the NASA DoD

56
00:02:40,110 --> 00:02:37,900
national aerospace plane program leading

57
00:02:43,559 --> 00:02:40,120
to an entire new family of aerospace

58
00:02:46,830 --> 00:02:43,569
vehicles in the next century