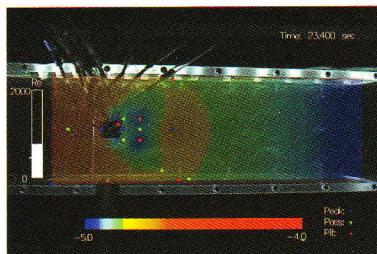
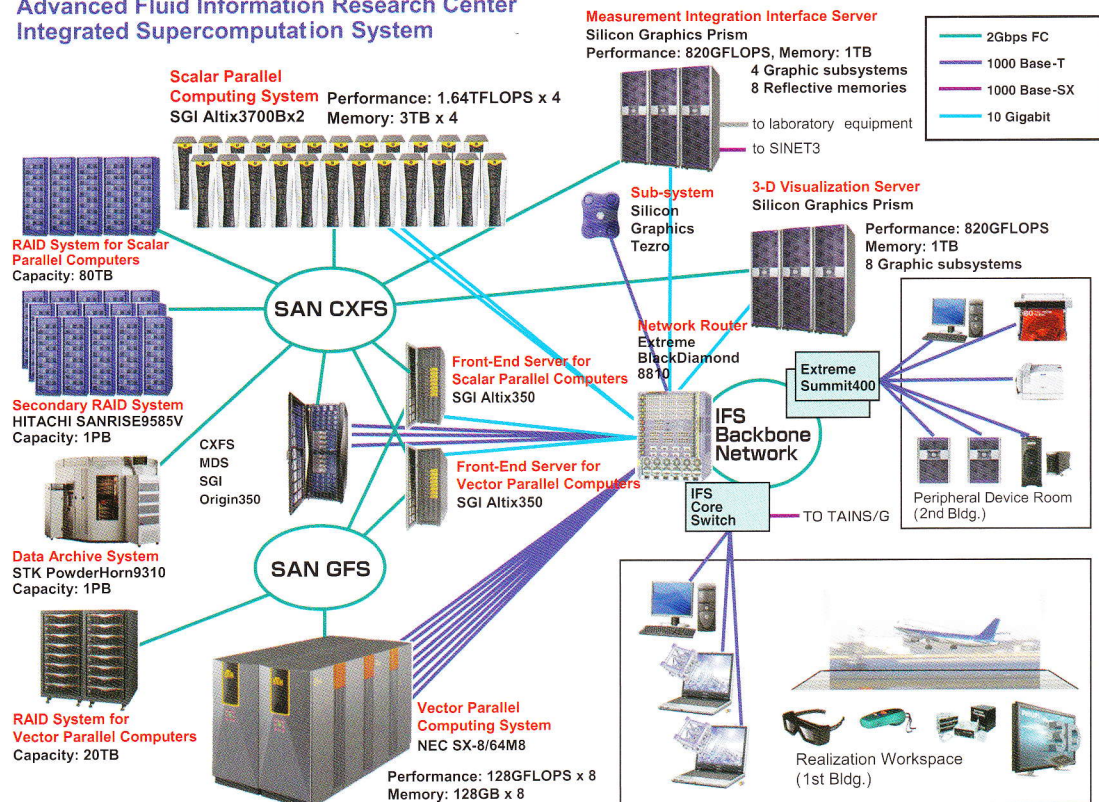


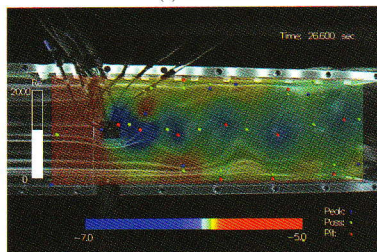
Measurement-Integrated Supercomputer System

The "Integrated Supercomputation System", which consists of the scalar- and vector- supercomputing servers, the Three-dimensional Visualization Server for image analysis of computation results, and the Measurement Integration Interface Server to link the supercomputer and experimental measurement system, started operation in November 2005. Data storage such as magnetic disk and tape library each of which has petabyte class capacity are respectively connected to the servers using a storage area network (SAN). The Realization Workspace and peripherals with the stereo visualization devices are in the system. For supercomputing servers, the SGI Altix 3700 is used as the Scalar Parallel Computing System, and the NEC SX-8 as the Vector Parallel Computing System, providing total peak performance of 9.2 TFLOPS and total memory of 15 TB (maximum shared memory 3 TB). The network that connects servers and users was developed using a 10 Gbit Ethernet as the backbone, and enables clients' work including high speed data exchange and image processing at each laboratory in the Institute of Fluid Science. This system is connected to the networks of major research institutes such as SINET3.

Advanced Fluid Information Research Center Integrated Supercomputation System

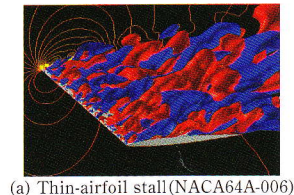


(a) $t = 23.4$ s

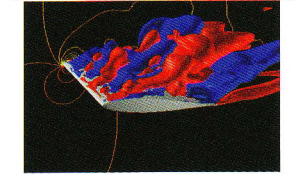


(b) $t = 26.6$ s

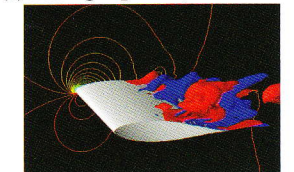
Realtime analysis of transient Karman vortex street with hybrid wind tunnel



(a) Thin-airfoil stall(NACA64A-006)

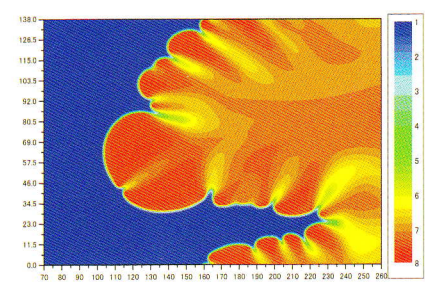
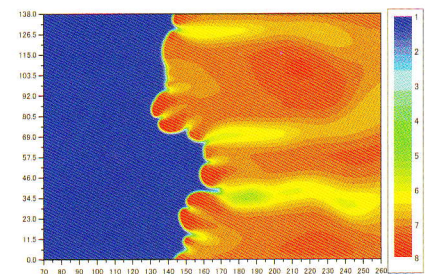


(b) Leading-edge stall(NACA631-012)



(c) Trailing-edge stall(NACA633-018)

Isosurface of spanwise velocity on suction surface and pressure contour at stall



Dynamic behavior of cellular premixed flames induced by intrinsic flame instability