International Space Station Assembly

Neptec's Space Vision System (SVS) is used to provide real-time, precise visual and numerical alignment and positioning cues to the Space Shuttle and International Space Station (ISS) crews when installing new modules during the assembly of the space station.

Neptec's original breakthrough technology, the Space Vision System (SVS) was designed to help astronauts assemble the International Space Station. Capable of processing standard Orbiter Camera video signals, it determines, in real-time, the precise location and orientation of objects in the video scene – making the SVS critical in triggering the "Ready to Latch" (RTL) indicators for mating the various International Space Station modules.

The SVS system displays object location and orientation at a rate of over 15 frames per second by tracking target arrays (black and white dots) on the space station modules using the Orbiter cameras and video system. This data is used to provide guidance and maneuvering information to the astronauts flying the shuttle and/or station robotic arms.

Neptec has developed three versions of the SVS starting with a laptop based version that flew on test flights in 1994 and 1995. Following this success two fully qualified mission critical systems were developed and installed, one for the Space Shuttle (Orbiter Space Vision Unit – OSVU) and one for the International Space Station (Advanced Vision Unit – AVU).

Neptec has developed the SVS software through 12 formal software upgrades and has operationally supported over 20 missions. Recent software enhancements have given the SVS the capability to autonomously control cameras on both the shuttle and space station. Discussions are on-going with NASA for future ISS survey work.

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Both pictures were taken by NASA.