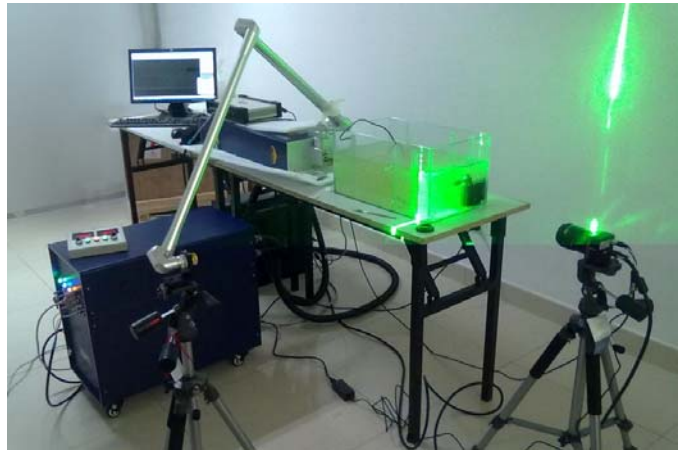
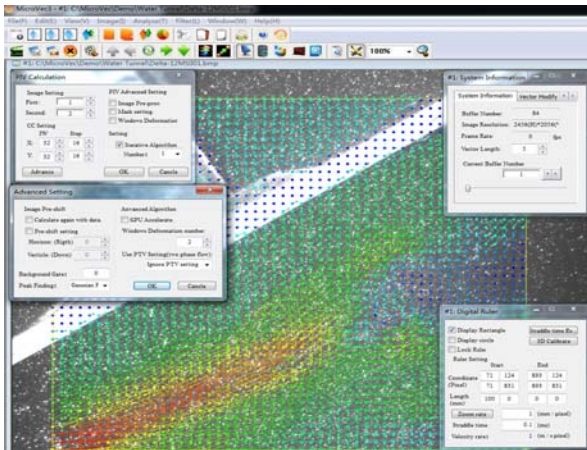


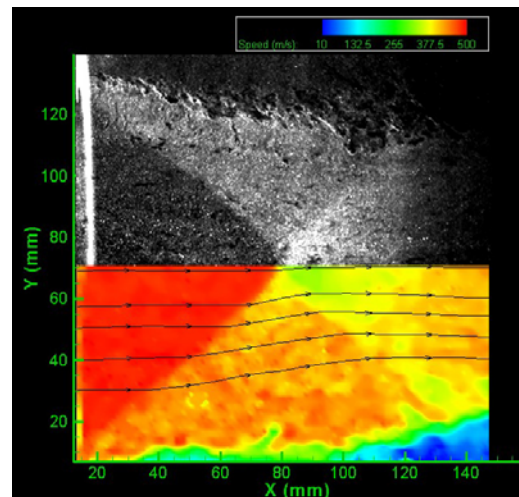
MicroVec 2D PIV System

Microvec offers an advanced 2D PIV system with integrated hardware and software for the most demanding experimental fluid dynamics experiments. Used from microscopic distances to 1 meter testing field, from speeds of few mm/sec to 7 Mach in air and water as well as ability to observe flow in flames.



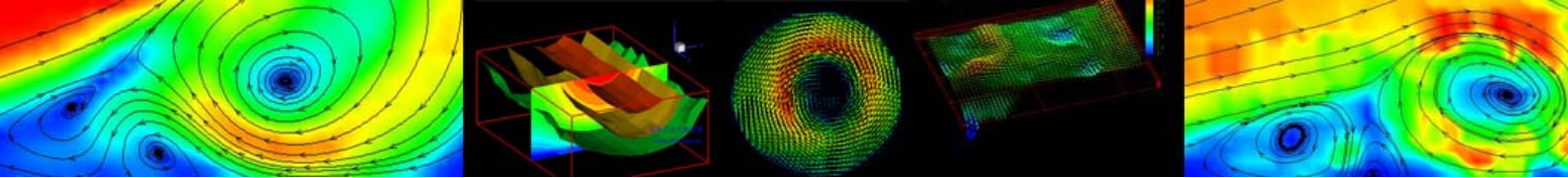
Particle Image Velocimetry (PIV) is an optical method of flow visualization used in education and research. It is used to obtain instantaneous velocity measurements and related properties in fluids. The fluid is seeded with tracer particles (like smoke in the air or small hollow beads with same density as water) in the flow field which is illuminated by the laser to illuminate the particles to make them visible and to capture images of them to track them. The sequential images with tracker particles in motion are then processed for cross correlation to calculate the speed and direction (the velocity field) of the flow which is being observed. Further processing can flow vortices, streamline and iso-speed lines, and flow field parameters distribution. MicroVec PIV system typical configuration consists of a digital CCD or CMOS camera, a laser with an optical arrangement to limit the physical area to be illuminated, a synchronizer to act as an external trigger for control and timing of the cameras and laser, the seeding particles and the fluid under investigation. A laser light arm may be used connect the laser to the lens setup, which then converts the beam into a light sheet. PIV software is used to process the optical images.

The MicroVec PIV systems are integrated with world leading PIV lasers from Litron (UK), Quantel (France), Photonics Industries (USA) and Beamtech Optronics (China) as well as with high-speed CMOS cameras from Fastec Imaging (USA), Photron (Japan), Vision Research (USA) and high-resolution CCD cameras with double frame mode from Imperx (USA). MicroVec - located in high tech centre - Singapore - brings these solutions to the international market. MicroVec PIV systems offer unprecedented and extraordinarily powerful solutions to be used by researchers from all over the world at the affordable prices not seen before in the commercial PIV applications.



MicroVec





Standard Components:

- **PIV lasers:** 2x70mJ/15Hz, 2x145mJ/15Hz 2x200mJ/15Hz, 2x380mJ/10Hz, 2x500mJ/10Hz
- **CCD cameras:** including lens, all interface cables and camera frame grabber: VGA/260fps, 1 MP/148fps, 2 MP/30fps, 4MP/41s, 5MP/16fps, 8MP/21fps, 11MP/6fps, 16MP/4fps or 29MP/4fps
- **Synchronizer:** 8 input and 2 output channel TTL control, 0.25ns jitter, USB controlled
- **MicroCap** PIV Image Capture Module & 2D high precision PIV software package (Windows 32-bit & 64-bit)
- Easily upgradable to 3D and Tomographic PIV system

Features:

- **MicroCap** software for image capture:
 - Integrated and easy control of all components (phase lock control): synchronizer, up to 8 cameras, laser
 - Camera control: free run, trigger, external trigger, PIV
 - Support image types: B/W, Grey 8-16 bit, RGB and digitizing function to image file formats: TIFF, BMP, JPG and AVI
 - Image store: long time capture, store to RAM or HD controlled by software
 - Frame grabber interface: PCI, PCI-E x1/x8
- **MicroVec** software for image-processing and analysis:
 - High resolution 2D PIV & PTV with multi-pass multi-grid window deformation algorithm
 - Mask function for removal of invalid image or data, multi-average function (particle image and vector result)
 - Calculating and plotting data results: U, V, W components of mean and fluctuating velocity, vorticity, RMS, turbulent kinetic energy values etc.
 - Batch processing: single directory or multi-directory
 - Support high density PTV function
 - Advanced vector filtering and correction
 - Export various image and video file formats
 - Export data file and links to MatLab, Tecplot and Origin for analysis and visualization
 - Includes GPU parallel processing support improving computing acceleration by factor 10

Applications:

- Wind tunnels and water tanks
- Aerospace and aeronautics
- Compressors, turbines, fans, pumps, sprays
- Micro electromechanical systems (MEMS)
- Chemical mixing equipment

Options:

- Proper Orthogonal Decomposition (POD) module
- Dynamic Mode Decomposition (DMD) module
- Pressure measurement with PIV module

