# DMAS 6
Digital Motion Capture and Analysis System
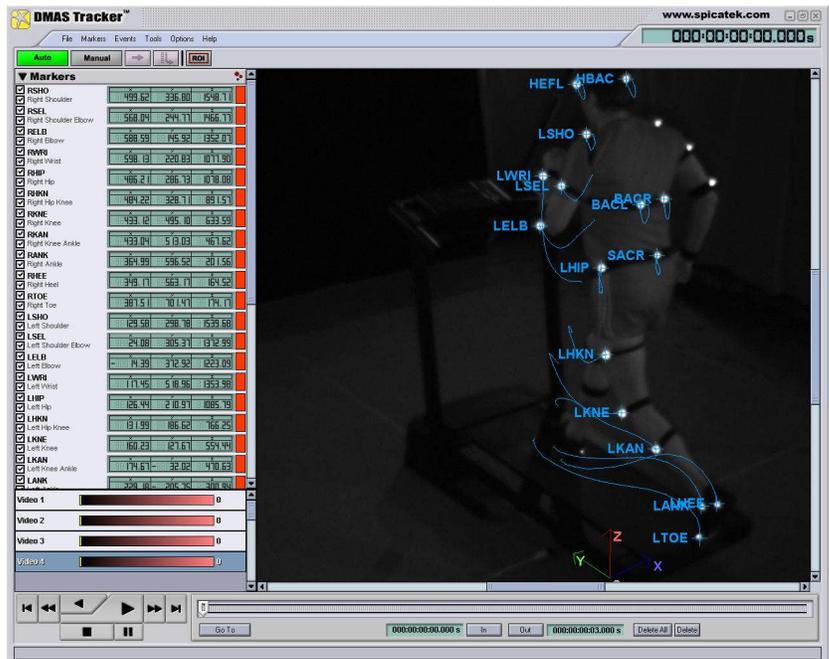
DMAS 6 - Versatile and Innovating Motion Capture and Analysis Systems

Motion Imaging Corporation introduces the complete solution for all your 2D, 3D, 6DOF tracking needs. DMAS-6 is capable of acquiring video data from multiple cameras as well as synchronized analog/digital data. The system allows you to select from manual, automatic, *real-time* or *real-time* with video tracking. DMAS-6 employs the unique capability of digitizing markers automatically for the entire video either in real-time or in a single mouse click, while simultaneously storing the video image for each camera. A thorough comparison of the data while viewing all the images from every camera is one of the unique aspects of DMAS 6. Analyzing your data is made easier by performing standard calculations including filtering, velocities and accelerations and more robust by providing customization options through use of internal scripting or utilizing the C++ SDK.
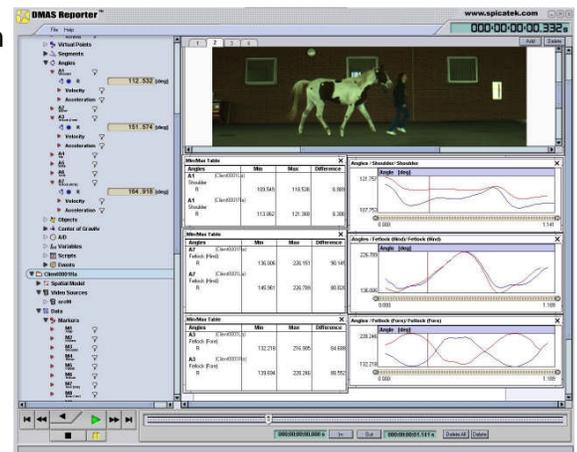
The DMAS 6 system is designed around the very latest in digital imaging and computer hardware components, allowing DMAS 6 to take full advantage of recent advances in camera, image processing and networking technologies. By taking advantage of recent developments in processing and networking, we are able to offer performance and accuracy previously unavailable to the motion capture industry. Our software uses the latest and most advanced video capture and tracking algorithms with sub pixel marker centroid calculations.
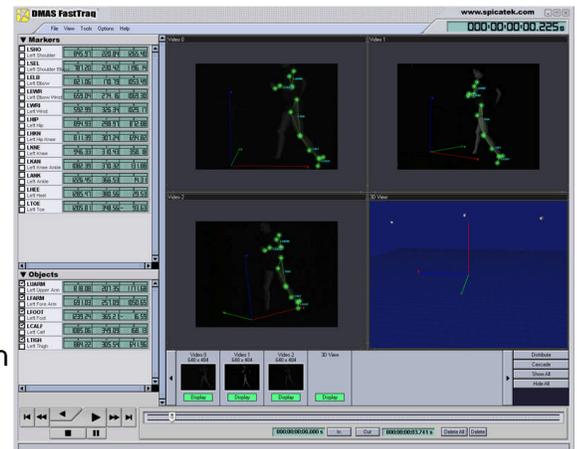
DMAS6 is compatible with all standard Camera Link, LVDS EIA-644, RS422, Firewire IEEE1394 and GB Ethernet progressive scan digital cameras. DMAS6 can control a variety of digital cameras with dynamic ranges from 30Hz to 2000Hz. DMAS6 is also available with fiber optic cables, ideal when you need to maximum distance between cameras and imaging stations.

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DMAS 6 Digital Motion Analysis System
Motion Capture Features and Capabilities

Database Manager—Maintains the database of captured data, including video images, analog and digital sensor data, calibration information, etc. The DMAS 6 database structure is object oriented and multi-layered. This means that it is possible to store multiple trials of the same object for easy comparison of "before and after" scenarios, comparing the performance of multiple subjects.

Network Manager—Manages the systems and keeps track of what equipment is attached to the network. Easy-to-use interfaces allow the user to quickly include and/or exclude data sources (e.g. cameras, transducers, etc.) from a particular trial.

Calibration—DMAS6 comes with three different methods of calibration; 2D static, 3D static and 3D dynamic. The static methods require a calibration spatial model. The user is free to design his/her own calibrators, as long as the calibrators contain the required number of markers. The 3D dynamic process consists of walking a wand with markers through the image capture area and using it together with a reference marker frame to identify origin and the coordinate axes.

Spatial Model Editor—The Spatial Model Editor is a tool for constructing a flexible and editable model of the object being analyzed, i.e. a human, an animal, a mechanical device, etc.

Data Capture—The data capture routines collect video data (both analog and/or digital) as well as data from a variety of analog and/or digital sensors. The data capture routines also manage the synchronization and display of all the data. Data from any number of cameras and sensors can be simultaneously recorded, as long as sufficient processing power is added to the network to support the required bandwidth.

Target Tracking—A variety of marker tracking methodologies are available to the user, depending on the DMAS6 product purchased by the customer. DMAS6 supports manual target tracking, auto target tracking (post processing technique), *real time* target tracking and the *real time* with video target tracking system. The DMAS6 real time with video allows the user to capture 100% of the video data while simultaneously tracking and cataloging all the data points from the captured video

Reporting—The DMAS6 Reporter is a utility for generating comprehensive reports of kinematics and kinetic data with sensor data, all synchronized with video. Each report may contain an unlimited number of graphs, with each graph containing data from multiple data sources. All data in the reports are fully synchronized with video, allowing data to be replayed in conjunction with video from a single or multiple cameras.

COTS—DMAS6 supports Commercial, Off-the-Shelf (COTS) technology and is compatible with all standard Camera Link, LVDS, EIA-644, IEEE 1394, RS422 or GB Ethernet progressive scan digital cameras, supporting popular models from a variety of manufacturers. In addition, DMAS6 supports an unlimited number of cameras (both digital and analog) and data channels (both digital and analog) for synchronization with motion data and timing data from such sources as force platforms, EMG, EKG, GPS, IRIGB, etc.

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