VOXEL Q VISUALIZATION SYSTEM

OPTIMIZED IMAGE QUALITY & ACCURACY
Voxel Q is the Picker® International medical image visualization system of choice for efficient high-speed 3-D reconstruction of the most complex Computed Tomography (CT) spiral datasets. In addition, Voxel Q offers unsurpassed multimodality capabilities for Magnetic Resonance (MR), and Nuclear devices. Designed to exceed industry standards in image reconstruction viewing and output clarity, the Voxel Q provides volume scan data at a rate of 10 million tri-linear interpolations per second (TRIPS).

The Voxel Q reconstructs 2-D, 3-D and 4-D image data, and offers a multitude of utilities for viewing enhancement. Multiplanar reformattting (MPR) and reconstruction in volume rendered angiography or surface rendered cranio-facial modes are generated - without the preprocessing or preselection of views.

Voxel Q's suite of features also includes tissue localization, contouring, segmentation, slice plane mapping, transparency, and add-on options such as dental planning, CT and MR Angiography, and InnerView for soft tissue visualization. Voxel Q™ capabilities are extensible to meet hospital requirements for multimodality and multivendor capabilities with robust network connections.

FEATURE-RICH FUNCTIONALITY
Key to the Voxel Q's high-performance level and flexibility in the selection, identification and viewing of patient data structures is its operator interface. The Voxel Q operator interface is both consistent and efficient. Image manipulation tools such as 3-D and MPR viewing modes, filming, archiving and segmentation are uniformly easy to use.

ADHERENCE TO INDUSTRY STANDARDS
• Modular industry standard hardware & software.
• Accepts medical image data from any Q Scanner CT system, ACR/NEMA DICOM 3.0 compliant devices, or 9-track tape media.
• Future ready: standards-based software design provides the platform for cost-effective product enhancements.

EASY TO LEARN, EASY TO USE
• User interface incorporates consistent placement of pull-down menus, buttons & dialog boxes, eliminating the need to memorize commands.
• Select viewport size & number (up to 48).
• Execute local & remote filming.
• Color mapping.
• Use keyboard or mouse for operations.

3-D
• Reconstruction time: ≤ 2 seconds, typically.
• Identify center of 3-D image.
• 360° rotation of images.
• Real-time interactive generation & manipulation.
• Toggle between window/level settings.
• Rectangular volume cuts (X, Y & Z planes).
• Transparency of a specified tissue type to view a second tissue type behind it. Uses all study data. Degree of transparency is user-selectable.

MULTIPLANAR REFORMATTIMG (MPR)
• Plan & modify the angle, number of slices, spacing & thickness of captured data.
• Specify curved planes, including spinal viewing.
• Generate views in arbitrary planes.
• Interactively adjust plane orientation & generate new views in real-time.
• Reformat 8 slices per second.
• Loop through images on X, Y & Z planes.
• Rotate angles in side viewports.

CONTOUR & REGION BASED SEGMENTATION
• Place seed points & contours on screen images.
• Tag tissues on a pixel to pixel level on axial.
• Auto-interpolate forVolume tissue tagging.
• Grow Region color-tagged seed points. In display slices, show voxels of the same gray scale ranges.
• Grow Volume propagation of color tagging throughout contiguous slices or image volume.
• Tag and/or contour any tissue types on a screen using 15 different colors.

DISARTICULATION
• Segment/tag tissues & disarticulate them to see underlying structures.
• Rotate disarticulated masses for alternate views.
• Use multiple viewports to show disarticulated masses - such as left and right sides of the hip - & rotate for side by side comparative views.
SUPERIOR IMAGE QUALITY
The Voxel Q provides superior image quality with 24 bit, full color image display. Gray scale capability is identical to the PQ-2000 with a 19" Invar™ shadow mask CRT for optimal contrast resolution. The Voxel Q’s trilinear interpolative processing capability ensures maximum image viewing accuracy.

IN EVERY RENDERING MODE...
• Window/Level mapping selection & adjustment.
• Slice selection (2-D, MPR & 3-D; Object selection for 4-D slices).
• Zoom magnification.
• Cine with speed adjustment.
• Screen saves to an output device.
• Save menu selections.
• HELP provides instant access to descriptions of menu items, function keys & instructions for their use.

MULTIMODALITY NETWORKING
• CT. MR & Nuclear applications at one location permit comparative viewing, differential diagnosis & improved patient care & outcome due to visualization accuracy.
• Connect almost any number & combination of modalities, including CT, MR & Nuclear Medicine.

COMMUNICATIONS
• IEEE 802.3 Ethernet. HYPERLAN II.
• ISDN.
• ATM.
• ACR/NEMA DICOM 3.0.

PICKER CT NETWORKING
• Connected via Picker HYPERLAN II, MTE & ENTRY networking devices. Voxel Q visualization systems & Q scanners have access to a number of laser cameras, archival devices & plain paper printers.

• All Picker Q Series scan data is transferred to Voxel Q via HYPERLAN II, an efficient, Ethernet® compatible standards-based network link, or via 8mm tape.

MULTIMODALITY VISUALIZATION WITH FUSION
Simultaneously load images from multiple modalities on the Voxel Q. Then, incorporate multimodality image fusion techniques. Manipulate images to overap, or map data points to view a region of interest. Fuse Nuclear data over CT data or CT data over MR data. With the utilization of colorwash and the parallel rotation of images from multiple modalities, Voxel Q can combine a unique level of perspective and dimension in viewing quality.

MULTIVENDOR SUPPORT
• Voxel Q supports networked devices which are ACR/NEMA DICOM 3.0 Storage User Service Class compliant.
• Voxel Q can exchange, backup & transfer medical image data using industry standard 9-track tape.

SUPPORT FOR HARDCOPY DEVICES
• Point & click selection, plus independent image capture & storage for output locations or modes.
• Onscreen, online status reporting.
• All imaging operations occur in the background, leaving scanner & Voxel Q functions fully executable.

AUTOMATIC SLIDE GENERATION
Film image segmentation and disarticulation to slide formats in both color and black & white.

FILMING FORMATS
• Autofilming.
• Batch filming.
• All available lasers supported.

REMOTE FILMING
• Eliminates cost of laser multimodality package.
• Upload & download files using standard phone lines, eliminating the costs associated with additional hardware.

COLOR MAP OPTIONS
• Tag screen data using 15 different colors. There is no limit to the number of tagged areas per color selection.
• Use color to denote over a dozen maps, including RTP beam maps, monochrome tag scale, cardiac flow maps & segmentation.

MEASUREMENTS
• Distance between selected points, angles or curves.
• Area, min./max. voxel values mean & standard deviation.
• Volume.
• Histogram.

VOXEL Q VISUALIZATION OPTIONS
• Dental.
• InnerView.
• CT/MR Angiography.
• 128 MB Voxel Accelerator.
• Color Printer.
• Slide Printer.
• Tools for user-written applications.

COMPONENTS
• Voxel Q Tower (SPARC CPU with Voxel Processor.)
• Voxel Q Console
  • 8mm Cartridge Tape Drive.
  • 9-track Tape Drive Unit (optional).
  • Keyboard.
  • 3 Button Mouse.
  • 19" Color Display Monitor.
• Voxel Accelerator
• MIPS: 1000.
• Million Ray Traces: 10 tri-linear.

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