SUPERSONIC
imagine

SYSTEM SPECIFICATIONS

AixplorerUltimate

AixplorerUltimate

AIXPLORER® ULTIMATE IS A COMPLETE EXPERT ULTRASOUND SYSTEM FROM SUPERSONIC IMAGINE FEATURING IMPECCABLE IMAGE QUALITY, SHEARWAVE™ ELASTOGRAPHY AND ULTRAFAST™ IMAGING MODES

Overview

Clinical Applications

Abdominal
Obstetrics & Gynecology (2D & 3D on endocavity transducer)
Breast (2D & 3D)
Thyroid
Genitourinary: Prostate (2D & 3D), Scrotum
Musculoskeletal (MSK)
Vascular and Transcranial Doppler (TCD)
Pediatric & Neonatal Head
Adult Cardiac*
General
Research

Imaging Modes

B-mode
M-mode
Color Doppler: Color Flow, Color Power, Directional Color Power
Angio PL.U.S.: PLanewave UltraSensitive™ Doppler Imaging
UltraFast™ Doppler Imaging
Pulsed Wave Doppler
Tissue Pulsed Wave Doppler*
Contrast Imaging (CEUS)
ShearWave™ Elastography (SWE™)
TriVu (real-time triplex B-mode, SWE and COL+ Doppler imaging)
3D B-mode, 3D Color and 3D SWE
Pulse Wave Velocity[1] measurement
Navigation & Fusion imaging
Needle PL.U.S.

Imaging Features

Panoramic Imaging
Simultaneous Doppler (Duplex and Triplex)
Wide Sector Imaging (Trapezoid)
Tissue Harmonic Imaging on all transducers
SuperCompound™ (Spatial Compounding)
SuperRes™ (Adaptive Filtering)
TissueTuner™ (Speed of Sound control)
B-mode PRF (Reverberation Reduction)

Ergonomics

Interactive Touch Screen
Sensitive TouchRing™
Flat Panel Display
Height Adjustable
Mobile
Easy to Operate
S-Key programmable

Workflow

AutoTGC: automated Time-Gain Compensation Control
ManualTouch TGC™
Retrospective and Prospective clip Capture
Cine Loop & PW AutoTrace Trim Capability
Q-Box™ Elasticity Quantification Tools
2D & 3D Volume Measurement Tools
Labeled Measurements
PW Doppler Baseline and PRF Assist
Integrated BI-RADS® Lexicon
Integrated Thy-RADS™ Lexicon
On-cart Study Review with 3D Study Continue Exam (Append)
Configurable ReportBuilder™
DICOM:
    Modality Worklist,
    Modality Performed Procedure Step,
    Store, Print, Query & Retrieve, Media Export,
    Push mode. Media import
JPEG/AVI/PDF Media Export
Wi-Fi wireless network connection
High Definition Digital Video Output (DVI)

* Available in China only.
[1] Pulse Wave Velocity (PWV) is not available in the USA

Revolutionary Architecture & Performance

System Configuration

	Performance+3D Configuration
Motherboard	ASUS P9X79WS Super Computer
Processor	Intel® Xeon Sandy Bridge E5-1650
Core Speed	3.2 GHz
Number of Cores	6 cores, 12 threads
Graphics Board	NVIDIA QUADRO M4000 with 8 GB RAM
Memory	16 GB
Monitor	DIVA 21.5 inch, 16:9 ratio
Power Supply	Version 4 (min), Firmware 51
Hard Drives	500 GB x 2
Imaging Channels	256 x 128
Video Output	1920 x 1080 High Definition DVI-D
3D Motor Controller	Integrated (optional)
Triggering	Triggering In/Out (optional)

Benchmarks

Cold Boot-up time: < 80 seconds
Shut down time: < 30 seconds
Transducer select time (typical): < 2 sec
Data access time: << 1 sec

Hardware

High performance hardware configuration to support 2D and 3D operation

Featuring:
- Intel processors
- Multi-thread processing
- 16 GB of RAM
- Two Large capacity Hard Drives

Software

64-bit Linux based Operating System

SonicSoftware™ Beamforming and Scan Conversion

Plane waves UltraFast™ Imaging for ShearWave™ Elastography, UltraFast™ Doppler, Angio PL.U.S., TriVu, PWV and Needle PL.U.S. imaging modes:
- Up to 20000 frames per second acquisition
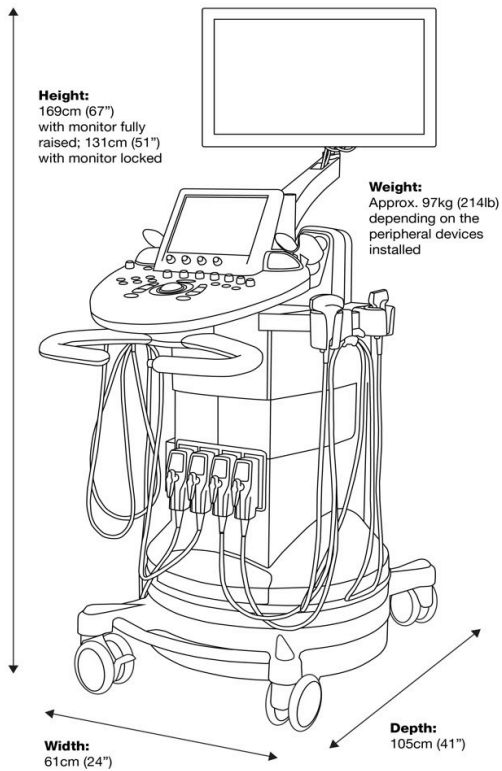- Data transfer rate: > 3 Gbytes/second

Physical System Specifications

System Height: Adjustable from 131 cm (51 in.) to 169 cm (67 in.)

System Depth: 105 cm (41 in.)

System Width: 61 cm (24 in.)

Weight: 97kg (214 lbs)

Height:
169cm (67")
with monitor fully
raised; 131cm (51")
with monitor locked

Weight:
Approx. 97kg (214lb)
depending on the
peripheral devices
installed

Width:
61cm (24")

Depth:
105cm (41")

Cart Design and Ergonomics

Thin, sleek body style

Able to pass through a 70 cm (28") doorway

Mobile design:

Adjustable height handles for improved posture and mobility

Four 5-inch wheels steering for excellent maneuverability

4 wheels braking with 2 swivel locks

Four active transducer ports

Two removable and washable gel holders

On-cart storage area

Transducer connector holders with cable management hooks

Up to 6 transducer holders (compatible with Barcode scanner)

Transducer cable assist holder

Document Holder:

• Integrated holder for iPod® or PDA

• Conveniently holds patient charts, records, etc.

OEM Printer bay:

Programmable Footswitch

Integrated DVI-D Video Output port

Trigger In/Out Port (optional)

Built-in footrest

Control Panel

Adjustable control panel height for operator comfort standing or sitting

Vertical adjustment: 84 to 98 cm ± 45° swivel articulation

Adjustable control panel backlighting

Large simple controls for ease of operation

Easy-touch dual function knobs to access major modes

Center trackball with TouchRing™ for unparalleled ease of fine adjustment

Integrated 10.4" Touch Screen

Integrated wrist rest

Magnetic stylus holder

Dedicated knob control for CEUS

Dedicated knob control for S-NAV Navigation and Fusion imaging

Flat-Panel Display and Articulated Arm

21.5" DIVA Color TFT Flat Panel Display

Low-glare hard coating; flicker-free to reduce eyestrain

Ultra-wide viewing angle: ±178° Horizontal and ±178° Vertical

Pixel-sharp high resolution: 1920x1080

Dot Pitch 0.2475 mm x 0.2475 mm

Display Colors 16.77 million colors, 8 bits for each RGB component

Contrast Ratio: 1000:1

Brightness: 300 cd/m2

Response time: 8 ms

Monitor is mounted on a fully articulated arm

Tilt from -10° to +45°, rotation of 85° on each side

Height adjustable

Overall height adjustment from 131 cm (52") to 169 cm (67")

Arm and monitor fold down to reduce overall height to 131 cm (52") for transport

Advanced User Interface Features

Interactive 10.4" Touch Screen:

- Resolution: 1024 x 768
- Operates by touch, even with gloves
- Stylus friendly non-scratch coating
- Touch-sensitive on-screen keyboard
- Support for 7 keyboard languages: English, German, French, Spanish, Italian, Russian and Swedish

Time-Gain Compensation Controls:

- Touch-sensitive ManualTouchTGC™ controls
- Up to 11 levels of TGC control in depth dimension
- One push AutoTGC control

Fingertip controlled Measurement Calipers:

- Images can be displayed on the
- Touch screen to perform measurements

Interactive Body Markers:

- Transducer orientation can be selected with two taps of the fingertip
- Easily change orientation with rotational knob control or TouchRing™

TouchRing™ trackball surrounds:

- Scroll lists
- Adjust PW sample size
- Adjust exam depth
- Rotate Body markers
- 3D navigation
- Rotate panoramic images
- Adjust Color Doppler and SWE box sizes
- Scroll imported DICOM volume data

S-Key programmable key control:

- User-programmable control allows the most commonly used functions to be accessed directly on the control panel

Auto Launch upon Freeze:

- User-programmable control allows the most commonly used features to be auto-launched after a Freeze: Annotations, Body Markers, or Measurements.

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Transducers

SL18-5 50mm Super Linear Array:

- 256 composite elements
- Effective bandwidth: 5 MHz to 18 MHz
- Transducer footprint: 51 mm
- Ultra-lightweight: 116 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect
- Biopsy guide available

SL15-4 50mm Super Linear Array:

- 256 composite elements
- Effective bandwidth: 4 MHz to 15 MHz
- Transducer footprint: 51 mm
- Ultra-lightweight: 116 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect
- Biopsy guide available

SC6-1 Super Curved Array:

- 192 composite elements
- Effective bandwidth: 1 MHz to 6 MHz
- Transducer footprint: 64 mm
- Field of View: 60°
- Ultra-lightweight: 122 grams
- Ergonomic handle
- 2.1 meter cable
- Pinless connector for one-handed-connect
- Biopsy guide available

XC6-1 Single Crystal Curved Array:

- 192 mono-crystal elements
- Effective bandwidth: 1 MHz to 6 MHz
- Transducer footprint: 64 mm
- Field of View: 60°
- Lightweight: 145 grams
- Ergonomic handle
- 2.1 meter cable
- Pinless connector for one-handed-connect
- Biopsy guide available

SL10-2 38mm Super Linear Array:

- 192 composite elements
- Effective bandwidth: 2 MHz to 10 MHz
- Transducer footprint : 38 mm
- Ultra-lightweight: 80 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect

SE12-3 138° Super Endocavity Array:

- 192 composite elements
- Effective bandwidth: 3 MHz to 12 MHz
- Transducer footprint: 28 mm
- Field of View: 138°
- Lightweight: 220 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect
- Biopsy guide available

SMC12-3 138° Super Micro-Convex Array:

- 192 composite elements
- Effective bandwidth: 3 MHz to 12 MHz
- Transducer footprint: 28 mm
- Field of View: 138° (170° in Wide mode).
- Ultra-lightweight: 51 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect

SLV16-5 38mm Super Linear Volumetric Array:

- 192 composite elements
- Effective bandwidth: 5 MHz to 16 MHz
- Transducer acoustic footprint: 38 mm x 43 mm (@ 30 degrees)
- 3D Field of View Options:
  Medium (~10°), Large (~20°),
  X-Large (~30°)
- Lightweight: 310 grams
- 2.1 meter cable
- Pinless connector for one-handed connect

SLH20-6 27mm Super Linear Array:

- 192 composite elements
- Effective bandwidth: 6 MHz to 20 MHz
- Transducer footprint: 27 mm
- Ultra-lightweight: 60 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect

XP5-1 Single Crystal Phased Array:

- 96 mono-crystal elements
- Effective bandwidth: 1 MHz to 5 MHz
- Transducer footprint: 19 mm
- Lightweight: 125 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect

SEV12-3 146° Super Endocavity Volumetric Array:

- 192 composite elements
- Effective bandwidth: 3 MHz to 12 MHz
- Transducer footprint: 28 mm
- Field of View: 146° (180° in Wide mode)
- Lightweight: 180 grams
- 2.1 meter cable
- Comfort-hold handle
- Pinless connector for one-handed connect
- Biopsy guide available

SL22-7lab 32mm Super Linear Array:

- 256 composite elements
- Effective bandwidth: 7 MHz to 22 MHz
- Transducer footprint: 32 mm
- Ultra-lightweight: 85 grams
- Comfort-hold handle
- 2.1 meter cable
- Pinless connector for one-handed connect
- For animal and research use only

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Clinical Applications Packages and User Presets

Complete optimized imaging applications and presets:

- **Abdominal:**
  - Abdomen
  - Liver
  - Difficult Abdomen (SC6-1 only)
  - Abdominal Vascular
  - Renal

- **Breast:**
  - Breast (2D & 3D)
  - Advanced Breast
  - Superficial Breast
  - Deep Breast
  - Survey

- **General:**
  - General (2D & 3D)
  - Phantom (2D & 3D)
  - Research (2D & 3D)
  - Cardiac*

- **Genito-Urinary:**
  - Scrotum
  - Prostate (2D & 3D)

- **OB-Gyn:**
  - Early OB (2D & 3D)
  - General OB (2D & 3D)
  - GYN (2D & 3D)
  - OB (2D)

- **Thyroid:**
  - Thyroid
  - Superficial Thyroid

- **Pediatric:**
  - Neonatal Head
  - Thyroid Neck
  - Abdomen
  - Hip
  - Scrotum
  - Superficial
  - Pelvis-Gyn

- **MSK:**
  - Shoulder
  - Elbow
  - Hand-Wrist
  - Knee
  - Foot-Ankle
  - Muscle

- **Vascular:**
  - Carotid
  - Upper Extremity Arterial
  - Upper Extremity Venous
  - Lower Extremity Arterial
  - Lower Extremity Venous
  - Abdominal Vascular
  - Transcranial Doppler (TCD)
  - Superficial Vascular
  - Renal

* Available in China only

User Customizable Presets

Up to 12 user-customized presets can be created per clinical application and per preset

New Presets can be created based on any existing factory optimized preset or customized preset

"New", "Update" or "Manage" Presets options are available on the Probe selection screen

New User Presets can be associated with any Clinical Application, and multiple Annotation, Body Marker and Labeled Measurement sets

Custom Presets are Color Coded for enhanced visibility and management
Factory and customized presets can be hidden from the preset selection menu

Selectable order of presets library per application

Default Image Display Size

Default zoom factors clinically validated for high image quality on the main display and when exported to a workstation

Quick Reset zoom control

Imaging Modes and Processing Options

Total Dynamic Range (across all modes): 200 dB

Total Processing Channels: 65000
• Transmit channels: 256
• Receive channels: 128

B-mode Imaging

Overall Bandwidth: 90% of transmit frequency on all transducers.

SL18-5 spatial resolution:
• Axial Resolution < 0.25 mm
• Lateral Resolution <0.4 mm

SL15-4 spatial resolution:
• Axial Resolution < 0.4 mm
• Lateral Resolution < 0.6 mm

SC6-1 spatial resolution:
• Axial Resolution < 1 mm
• Lateral Resolution < 1.5 mm

XC6-1 spatial resolution:
• Axial Resolution < 0.5 mm
• Lateral Resolution < 1.3 mm

SE12-3 spatial resolution:
• Axial Resolution < 0.5 mm
• Lateral Resolution < 0.6 mm

SL10-2 spatial resolution:
• Axial Resolution < 0.5 mm
• Lateral Resolution < 0.5 mm

SLV16-5 spatial resolution:
• Axial Resolution < 0.25 mm
• Lateral Resolution < 0.5 mm

• **SMC12-3 spatial resolution:**
• Axial Resolution < 0.5 mm
• Lateral Resolution < 0.6 mm
•
XP5-1 spatial resolution:
• Axial Resolution < 0.5 mm
• Lateral Resolution < 2 mm

SLH20-6 spatial resolution:
• Axial Resolution < 0.25 mm
• Lateral Resolution < 0.3 mm

SEV12-3 spatial resolution:
• Axial Resolution < 0.5 mm
• Lateral Resolution < 0.8 mm

SL22-7lab spatial resolution:
• Axial Resolution < 0.25 mm
• Lateral Resolution < 0.25 mm

Basic Imaging Optimization controls:
• Fundamental Imaging
• Tissue Harmonic Imaging

- High Definition / Medium / Frame Rate optimization control
- Resolution / General / Penetration optimization control
- Wide (Trapezoidal) Imaging (where applicable)
- Sector Size Control (where applicable)
  - Large, Medium, Small

Advanced Imaging Optimization controls:
- SuperCompound™ Image enhancement
  - Up to 9 beam-steered lines of sight
- SuperRes™ Image enhancement:
  - Speckle noise reduction and edge enhancement
  - Optimized per transducer and application
  - Up to 6 levels selectable by user
- TissueTuner™ Speed of Sound Correction
  - Up to 13 different speeds to adapt to tissue type
- B-mode PRF (Reverberation Reduction)
- Manual or Automatic Focal Zone management options
- Auto Adaptive Time-Gain Compensation
  - Automatic TGC/power management ensures B-mode remains TGC balanced across mode and sub-mode changes (Res/Gen/Pen, THI, color Doppler, etc).

Frame Rate (typical):
- SL18-5 > 40 Hz
- SL15-4 > 50 Hz
- SC6-1 > 20 Hz
- XC6-1 > 21 Hz
- SE12-3 > 35 Hz
- SL10-2 > 45 Hz
- SLV16-5 > 40 Hz
- SMC12-3 > 35 Hz
- XP5-1 > 40 Hz
- SLH20-6 > 55 Hz
- SEV12-3 > 20 Hz
- SL22-7lab > 50 Hz

Dynamic Range: 40-80 dB in 1 dB steps
B-mode Gain: 0 – 100% of Dynamic Range
General Gain and Manual TGC adjustable in Frozen Review
Line Density (max): 10 lines/mm
Persistence: 4 levels

Maximum Depth (preset dependent):
- SL18-5:   8 cm
- SL15-4:   8 cm
- SC6-1:   30 cm
- XC6-1:   35 cm
- SL10-2:   12 cm
- SE12-3:   22 cm
- SLV16-5:   8 cm
- SMC12-3:   15.20 cm
- XP5-1:   29.40 cm
- SLH20-6:   5 cm
- SEV12-3:   25 cm
- SL22-7lab: 2.5 cm

Other information:
- Multiple focal zones: Up to 3
- Focal positions: Up to 8
- Display Gray Levels: 256
- Total Maps: 12 (preset dependent)
- Tinted Maps: 4 (preset dependent)
- Manual and AutoTGC
- HD/Digital Zoom
- Biopsy Guidelines & Beam Steering Control (available in some presets)

Color Flow Imaging (CFI), Color Power Imaging (CPI), and Directional Color Power Imaging (dCPI)

Bi-directional broadband Doppler Color Flow Velocity Imaging (CFI)
Broadband Color Power Imaging of Doppler Energy (CPI)
Directional Color Power Imaging (dCPI)
SuperCompound™ B-mode Image enhancement available in Color Modes
TouchRing™ Color Box size control

SL18-5 frequency range: 5.0-9.0 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 0.5 mm
- Number of lines: 256 Color + 256 2D lines
- Number of lines in Zoom: 512 lines
- Line Density (max): 5 lines/mm
- PRF Range: 260 - 28000 Hz
- Velocity Range: 2.0 - 72.0 cm/s

SL15-4 frequency range: 5.0-9.0 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 0.5 mm
- Number of lines: 256 Color + 256 2D lines
- Number of lines in Zoom: 512 lines
- Line Density (max): 5 lines/mm
- PRF Range: 260 - 28000 Hz
- Velocity Range: 2.0 - 72.0 cm/s

XC6-1 frequency range: 2.0-2.5 MHz:
- Axial Resolution: 2 mm
- Lateral Resolution: 2 mm
- Number of lines: 96 Color + 192 2D lines
- Number of lines in Zoom: 192 lines
- Line Density (max): 3 lines/mm
- PRF Range: 270 Hz - 6600 Hz
- Velocity Range: 5.0 - 103.0 cm/s

SC6-1 frequency range: 1.8-3.8 MHz:
- Axial Resolution: 2 mm
- Lateral Resolution: 2 mm
- Number of lines: 96 Color + 192 2D lines
- Number of lines in Zoom: 192 lines
- Line Density (max): 5 lines/mm
- PRF Range: 240 - 10030 Hz
- Velocity Range: 5.0 - 103.0 cm/s

SL10-2 frequency range: 3.8-6.4 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 1 mm
- Number of lines: 192 Color + 192 2D lines
- Number of lines in Zoom: 192 lines
- Line Density (max): 5 lines/mm
- PRF Range: 183 - 29400 Hz
- Velocity Range: 2.0 - 170.0 cm/s

SE12-3 frequency range: 5.0-7.5 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 1 mm
- Number of lines: 96 Color + 192 2D lines
- Number of lines in Zoom: 192 lines
- Line Density (max): 3.5 lines/mm
- PRF Range: 260 - 12000 Hz
- Velocity Range: 2.0 - 72.0 cm/s

SLV16-5 frequency range: 5.0-9.0 MHz:
Axial Resolution: 0.5 mm
Lateral Resolution: 0.5 mm
Number of lines: 192 Color + 192 2D lines
Number of lines in Zoom: 384 lines
Line Density (max): 5 lines/mm
PRF Range: 260 - 18250 Hz
Velocity Range: 2.0 - 72.0 cm/s

SMC12-3 frequency range: 5.0-7.5 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 1 mm
- Number of lines: 48-96 Color+192 2D lines
- Number of lines in Zoom: 96 lines
- Line Density (max): 3.5 lines/mm
- PRF Range: 2000 - 28000 Hz
- Velocity Range: 2.0 - 170.0 cm/s

XP5-1 frequency range: 2.0-3.0 MHz:
- Axial Resolution: 1 mm
- Lateral Resolution: 2 mm
- Number of lines: 30 Color + 90 2D lines
- Number of lines in Zoom: 90 lines
- Line Density (max): 1 line/degree
- PRF Range: 100 - 7600 Hz
- Velocity Range: 2.0 - 104.0 cm/s

SEV12-3 frequency range: 3.7-6.4 MHz:
- Axial Resolution: 0.8 mm
- Lateral Resolution: 1.4 mm
- Number of lines: 96 Color + 192 2D lines
- Number of lines in Zoom: 192 lines
- Line Density (max): 3.5 lines/mm
- PRF Range: 190 - 12000 Hz
- Velocity Range: 2.0 - 72.0 cm/s

SLH20-6 frequency range: 6.0-9.0 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 0.5 mm
- Number of lines: 48 Color + 192 2D lines
- Number of lines in Zoom: 192 lines
- Line Density (max): 7 lines/mm
- PRF Range: 570 - 18200 Hz
- Velocity Range: 2.0 - 72.0 cm/s

SL22-7lab frequency range: 9.0-15.0 MHz:
- Axial Resolution: 0.5 mm
- Lateral Resolution: 0.5 mm
- Number of lines: 128 Color + 256 2D lines
- Number of lines in Zoom: 256 lines
- Line Density (max): 8 lines/mm
- PRF Range: 430 - 30400 Hz
- Velocity Range: 2.0 - 72.0 cm/s

Color Gain: 58 dB
Dynamic Range: 12 - 38 dB (60 dB max)
PRF Range: 260 - 16800 Hz

Velocity Optimization:
• 4 quick-set Velocity levels
• Off, Low, Med, High

Color Display Options:
  • Color Blending
  • Color Flash Suppression
  • Color Zoom
  • Color Invert
  • Hide/Show Color display
  • Color & B-mode Side By Side

Color Maps: Up to 10 (CFI), 8 (CPI)
Color Wall Filters: 4 levels
Color Smoothing: 7 levels
Color Persistence: 5 levels
Color/B-mode Priority Levels: 0-100%

Focal Zone: Auto set to color box, independent of 2D focal zone

Focal positions: 8

Color Steering:
  • Steering angle: -20° to 20° in variable increments (2°, 5°, 10°, 20°)
  • Auto-Color Invert with Color Box steering in CFI
  • Configurable steering control: Rotation can be set clockwise or counter-clockwise

Angio PL.U.S.
(CFI, CPI and dCPI)

• PLanewave UltraSensitive™ Imaging Doppler mode using Plane wave acquisition and UltraFast modes
• Increased sensitivity and spatial resolution on slow flows
• Available on SL18-5, SL15-4 & SL10-2 for Breast, Abdomen, Thyroid and MSK applications
• Available on XC6-1 for Abdomen and Gyn applications
• Adjustable PRF flow velocities (1 cm/s up to 12 cm/s)
• Angio PL.U.S. RT real-time imaging mode
    o Very high sensitivity and frame rate using a large color box

    o Spectral PW available
• Angio PL.U.S. HD prospective acquisition
    o Activate with a single button
    o Maximum sensitivity and frame rate (up to 160 Hz) even using a large color box
    o Maximum spatial resolution
    o Post processing controls available
• Several Angio PL.U.S. sub-modes available:
    o Color Flow Imaging (CFI)
    o Color Power Imaging (CPI)
    o Color Power Imaging with B-mode signal suppression
    o Directional Color Power Imaging (dCPI)

SL18-5 spatial resolution:
• Axial Resolution < 0.2 mm
• Lateral Resolution <0.2 mm

SL15-4 spatial resolution:
• Axial Resolution < 0.2 mm
• Lateral Resolution < 0.2 mm

SL10-2 spatial resolution:
• Axial Resolution < 0.2 mm
• Lateral Resolution < 0.3 mm

XC6-1 spatial resolution:
• Axial Resolution < 0.4 mm
• Lateral Resolution < 1.2 mm

Pulsed Wave Doppler Imaging (PW)

Pulsed Wave Doppler with Doppler Imaging modes (CFI, CPI & dCPI) in Duplex and Triplex modes

High PRF PW Doppler available in all presets including duplex and triplex

Transmit frequency:
  • SL18-5:   5 Mhz
  • SL15-4:   5 MHz
  • SC6-1:   2.25 MHz
  • XC6-1:   2.1 MHz
  • SL10-2:   3.75 MHz
  • SE12-3:   4.5 MHz
  • SLV16-5:   5 MHz

- SMC12-3: 4.5 MHz
- XP5-1: 2.25 MHz - 1.875 MHz
- SEV12-3: 4.5 MHz
- SLH20-6: 7.5 MHz
- SL22-7lab: 15.0 MHz

FFT Processing: Up to 256 points
FFT Speed: Up to 1920 FFT per second at highest sweep

PW Sweep Speeds: 4 levels (Low, Med, High, Max)

PW Total Maps: 9
PW Chroma Maps: 4
Wall Filters: 3 levels (Low, Med, High) with displayed value in Hz
PRF Range: 200 – 28000 Hz
Dynamic Range: 32 dB (100 dB max)
PW Gain: 0-100% of Dynamic Range
Gain Adjustable in Frozen Review
Quick Auto Angle Steering: -60°/0°/60°
Fine Angle Correction: -88° to 88° in 1° steps

Sample Volume size: 0.5 mm to 2 cm
Configurable PW Invert option

Velocity Range (@ 1540m/s):
- SL18-5: 6 to 880 cm/s
- SL15-4: 6 to 880 cm/s
- SC6-1: 12 to 1400 cm/s
- XC6-1: 12 to 1400 cm/s
- SL10-2: 6 to 1160 cm/s
- SE12-3: 6 to 1000 cm/s
- SLV16-5: 6 to 880 cm/s
- SMC12-3: 6 to 1000 cm/s
- XP5-1: 13 to 500 cm/s
- SEV12-3: 6 to 1000 cm/s
- SLH20-6: 6 to 350 cm/s
- SL22-7lab: 6 to 170 cm/s

Minimum Detectable Flow Velocity (per wall filter cut-off value):
- SL18-5: 0.25 cm/s
- SL15-4: 0.25 cm/s
- SC6-1: 0.51 cm/s
- XC6-1: 0.50 cm/s
- SL10-2: 0.25 cm/s
- SE12-3: 0.25 cm/s
- SLV16-5: 0.25 cm/s
- SMC12-3: 0.25 cm/s
- XP5-1: 0.5 cm/s
- SEV12-3: 0.25 cm/s
- SLH20-6: 0.2 cm/s
- SL22-7lab: 0.2 cm/s

PW Display Options:
- 5 display formats (full screen trace, side by side, 1/3-2/3, 1/2-1/2, 2/3-1/3)
- Spectral Invert

PW Doppler Baseline and Scale Assist
- One-button to adjust baseline and scale

PW Doppler Spectral AutoTrace:
- Real-time envelope detection of PW trace
- Sensitivity optimization: Low, Medium, High, Maximum
- Optimization for traces above, below or both sides of baseline
- Mean Trace display
- Velocity measurement points display
- Configurable automated measurements display (PSV, EDV, RI, PI, TAMV, etc.)
- Cycle averaging with cycle select control up to 3 cycles
- Goalposts can be manually set.

Full Suite of Measurements including:
- Peak Systolic Velocity
- End Diastolic Velocity
- Minimum Diastolic Velocity
- Resistive Index
- Pulsatility Index
- Systolic/Diastolic Ratio
- Time Average Peak Velocity
- Time Average Mean Velocity
- Acceleration Time
- Acceleration Index
- Pressure Gradient (Peak and Mean)
- Velocity Time Integral
- Volume Flow
- Vessel Diameter and Area
- Doppler Angle
- Sample Volume Depth
- Heart Rate

ShearWave™ Elastography Imaging (SWE™)[2]

[2]SWE is not available in Vascular and OB applications.

ShearWave™ Color Box overlay on B-mode image
All B-mode controls are available in SWE mode
SuperCompound™ B-mode Image enhancement available in SWE
SonicTouch™ Mach cone shear wave generation:
- Real-time

- Fully automatic; No compression required
- Reproducible

UltraFast™ Data Acquisition Technology for SWE:
- SWE Data Frame Rate: 20 kHz
- Real-time Display Frame Rate: up to 3 Hz

SWE Optimization Controls:
Resolution, Standard, Penetration

Spatial Resolution of SWE:
(mean of axial and lateral measures)
- SL18-5:   1.7 mm
- SL15-4:   1.7 mm
- SL10-2:   1.8 mm
- SLV16-5:   1.6 mm
- SC6-1:   2.9 mm
- XC6-1:   1.2 mm
- SE12-3:   2.4 mm
- SMC12-3:   2.4 mm
- SEV12-3:   2.4 mm
- SLH20-6:   0.9 mm
- SL22-7lab: < 1.7 mm

SWE Penetration (greater than):
- SL18-5:   3.0 cm
- SL15-4:   3.0 cm
- SL10-2:   4.5 cm
- SLV16-5:   3.5 cm
- SC6-1:   7.5 cm
- XC6-1:   7.5 cm
- SE12-3:   3.56 cm
- SMC12-3:   3.5 cm
- SEV12-3:   3.7 cm
- SLH20-6:   2.2 cm
- SL22-7lab: 0.7 cm

SWE Display formats:
- Single
- Dual Side-By-Side
- Dual Top-Bottom
- Overlay (available in TriVu)

SWE UI controls:
- User adjustable SWE-box size
- SWE maximum scale
- Spatial Smoothing: 9 levels
- Persistence: 4 levels
- Elasticity Maps: 6
- Gain
- Opacity (0 - 100%)
- Display Unit (kPa or m/s)
- Display Format

SWE Quantification:
Q-Box™ pixel accurate Elasticity quantification
Range of Elasticity:
- 0 - 300 kPa (0-10 m/s) typical
- 0 - 800 kPa (0 - 16.3 m/s) in MSK preset
Optimized default Elasticity scale and SWE sequences per application

SWE Elasticity Estimation Bias (Q-Box™):
Approximately +/-15% of displayed value
(Target size and stiffness dependent)

5 Q-Box™ Tools to meet a variety of applications needs:
- Q-Box™ - Single ROI
- Q-Box™ Ratio - Compare 2 ROI's
- Q-Box™ Trace - Draw freeform ROI
- Multi Q-Box™ - Position any number of Q-Box™ in multiple images for automatic averaged calculations (Average, Median, SD and IQR)
- SWE Stability Index - Automatic assessment of SWE reproducibility and reliability Available on XC6-1/Abdomen presets (except Renal).

TriVu Imaging

- Combine B-mode, SWE and color Doppler imaging into a real-time triplex mode
- Based on PLanewave UltraSensitive™ Imaging mode using Plane wave acquisition and UltraFast modes
- Maintain B-mode and SWE quality and performance
- Increased sensitivity and spatial resolution of COL+ Doppler similar to Angio PL.U.S.
- Available on SL18-5, SL15-4 & SL10-2 for Breast and Thyroid applications
- Adjustable PRF flow velocities (1 cm/s up to 16 cm/s)
- Several display format available:
  o Top Bottom
  o Side by side
  o Single (all modes superimposed with opacity control for SWE and COL+)
- Retrospective optimizations controls:
  o Zoom (up to 500%)
  o Gain and Manual TGC of B-mode
  o Gain of COL+ color Doppler
  o Hide COL+
  o Dynamic Range of COL+

- o   Opacity of SWE (from 0 to 100%)
- o   Opacity of COL+ (from 0 to 100%)
- All SWE measurements and caclulation tools are available in TriVu.

M-mode Imaging

M-mode imaging is available on:
- All OB-GYN Presets of SC6-1, XC6-1, SE12-3 and SEV12-3
- SC6-1 and XC6-1 Abdominal/Abdomen
- XP5-1 General/Cardiac

XC6-1 frequency range:
- Fundamental Imaging: 2.8 – 4.5 MHz
- Harmonic Imaging:
  - Transmit 1.5 – 2.3 MHz
  - Receive 3.0 – 4.6 MHz

SC6-1 frequency range:
- Fundamental Imaging: 2.5 - 5 MHz
- Harmonic Imaging:
  - Transmit 1.0 - 3.0 MHz
  - Receive 2.0 – 6.0 MHz

SE12-3 frequency range:
- Fundamental Imaging: 4.5 - 9 MHz
- Harmonic Imaging:
  - Transmit 3 – 4.5 MHz
  - Receive 6 - 9 MHz

SEV12-3 frequency range:
- Fundamental Imaging: 4.5 - 9 MHz
- Harmonic Imaging:
  - Transmit 3 – 4.5 MHz
  - Receive 6 - 9 MHz

XP5-1 frequency range:
- Fundamental Imaging: 2.5 - 3.2 MHz
- Harmonic Imaging:
  - Transmit 1.6 – 2.25 MHz
  - Receive 3.2 - 4.5 MHz

M-mode Sweep Speeds: 4 levels (Low, Med, High, Max)

Total Maps: 12
Chroma Maps: 4
Smoothing: 8 (0 to 7)
PRF: 1000 Hz in Fundamental Imaging, 500 Hz in Harmonic Imaging
Dynamic Range: 35 dB to 80dB

Gain: 0-100% of Dynamic Range linked to B-mode Gain
Gain Adjustable in Frozen Review
M-mode Zone size: 5 mm to max B-mode Depth
M-mode Display Options:
- 3 display formats (side by side, 1/2-1/2, 2/3-1/3)
Acquisition zoom capability

Full Suite of Measurements including:
- M-mode Distance
- Heart Rate Measurement

UltraFast™ Doppler Imaging

UltraFast Doppler unites 2D Doppler at a very high frame rate and PW Doppler with tremendous advantages:

- Capture up to 4 seconds of Color Flow or Color Power data at frame rates of up to 200 Hz
- Fast processing time, <15 sec typical
- Available on SL10-2, SC6-1, XC6-1 and XP5-1 probe in all Abdominal, Pediatric, Vascular and Cardiac applications
- Capture in all available sub-modes: Color Flow, Color Power and directional Color Power
- Visualize complex flow dynamics in slow motion
- No trade-off between frame rate and color box size
- No time delays in flow dynamics as in conventional Color Flow
- Quad or full screen display of UltraFast™ Color Flow clip, Peak Systolic image, Mean of Velocities and Maximum of Velocities Images
- Allows "PW Anywhere" spectral analysis, with up to 3 sample volumes analyzed simultaneously
- Adjustable PW Gain, Baseline and Scale in Review
- Adjustable Dynamic Range and Smoothing to optimize spectral Doppler appearance
- Full quantitative measurement capability (PSV, EDV, etc.) with independent AutoTrace or manual measurements
- Automatic save and with retrospective analysis (and re-analysis) of data in Review

Needle PL.U.S.

Needle PL.U.S. automatically detects and modelizes any biopsy needle in a specific display mode

- Available on all applications of SL18-5, SL10-2 and SLH20-6 (except Neonatal Head)
- Alternates Plane Waves sequences (for needle detection) and conventional Ultrasound sequences (for B-mode imaging)
- Biopsy needle is coded in a specific overlay
- Optimized for a range of 14G-25G needles
- No compromise on B-mode image quality
- Needle path can be visualized

Needle PL.U.S. controls:
- Orientation
- Needle Path (on/off)
- Needle Gauge
- Needle map: 7
- Persistence
- Opacity
- Edge Enhancement

Controls and settings can be presetable

Contrast Imaging Mode (CEUS)

Available on some applications of XC6-1, SC6-1, SE12-3, SEV12-3 and SL10-2

Fully optimized Contrast Imaging mode for leading contrast agents:

SonoVue® and Lumason® (USA), Bracco Sonazoid™, GE Healthcare

Simultaneous acquisition of B-mode and Contrast images in real-time

Low MI B-mode to minimize contrast agent destruction

Pulse inversion and Power modulation technology

Full screen or Side-by-side display

On-screen Contrast timer

Up to 5 minutes of streamed prospective cine capture

Independent control of gain, contrast color maps, TGC curves, and Dynamic Range

Flash destruction mode with adjustable duration

User adjustable number Flash duration

Micro-vascular Imaging (MVI) persistence imaging to assess slow micro-vessel perfusion

CEUS data export compatible with Bracco VueBox® off-line software

3D Imaging

3D imaging in B-mode, Color (on SEV12-3) and SWE

Fully optimized Breast, Prostate, OB-Gyn and General presets

Volume Sizes on SLV16-5: Medium (10°), Large (20°) and X-Large (30°)

Volume Sizes on SEV12-3: Medium (20°), Large (40°) and X-Large (60°)

Fast volumetric acquisition < 10 seconds

Intuitive 3D navigation via touch screen and control panel

Quad-screen display format with Axial, Transverse and Coronal planes

MultiPlane and MultiSlice display formats also available

Slab Thickness controls with optimized rendering features

3D B-mode and SWE volume measurements

Save 3D volume loops

On-cart review package with advanced 3D real-time post-processing

Append additional images to any 3D study

Dual Imaging

Full featured Dual Imaging Mode with independent controls and measures in side-by-side and top/bottom display:

- Dual B-mode
- Dual B-mode, Color, Angio PL.U.S. & SWE

Side-By-Side mode available for B-mode and Color visualization in a "dual-like" format

Available retrospectively after image acquisition

Panoramic Imaging

Extended field of view imaging in B-mode on SL18-5, SL15-4, SL10-2 and SLH20-6 transducers

Up to 60 cm of scanning length

Skin-line scaling markers

Curved distance measurement tool

Zoom, pan, rotate, and trim

Fully trimmable from start or end of the panoramic capture

Composite Imaging Modes

Composite imaging modes include:
- Simultaneous B-mode & Color Flow Imaging (CFI)
- Simultaneous B-mode & Color Power Imaging (CPI)
- Simultaneous B-mode & Directional Color Power Imaging (dCPI)
- Simultaneous B-mode & PW
- Simultaneous B-mode & M-mode
- Simultaneous B-mode & SWE
- Simultaneous B-mode, Color & PW Doppler
- Simultaneous B-mode & CEUS Imaging
- Simultaneous B-mode & Angio PL.U.S. Imaging (CFI, CPI & dCPI)
- Simultaneous B-mode & Needle PL.U.S.
- Simultaneous B-mode, SWE & Color (TriVu)
- HD Zoom (high-resolution zoom)
  - Available in all imaging modes
  - Up to 512 scan lines of resolution

Image Review Post-Processing and Cine Clip Capture Features

Image post-processing controls available while in frozen review:

B-mode:	Gain, Dynamic Range, TGC, B-mode Maps, Digital Zoom, SuperRes, Persistence, Measurements, Annotations, Body Markers
CFI/CPI/ dCPI:	Color Map, Color Priority, Hide/Show Color, Blending, Baseline, Invert, Dynamic Range (dCPI), Digital Zoom
PW:	Gain, Dynamic Range, Sweep Speed, Smoothing, Display Format, PW Map, Angle Correct, Baseline, Invert, AutoTrace

M-mode:	Gain, Dynamic Range, Sweep Speed, Smoothing, Display Format, Map, Contrast
SWE:	Display Format, Blending, Elasticity Map, Elasticity Range, Persistence
UltraFast:	PW Scale, PW Baseline, PW Wall Filter, Spectrogram Invert, PW Map, PW Angle Correction, Color Gain, B-mode Gain, Dynamic Range, Smoothing, Play Spectral data, Add/Remove/Adjust Spectrograms.
Angio PL.U.S. RT:	Color Map, Color priority, Side by Side, Hide/Show color, Baseline, Invert, Blending, Dynamic Range (dCPI).
Angio PL.U.S. HD:	Gain, Color Map, Color priority, Side by Side; Hide/Show color, Baseline, Invert, Blending, Dynamic Range (dCPI).
TriVu	Color Map, Color Priority, Hide/Show Color, Blending, Baseline, Invert, Dynamic Range (dCPI), Digital Zoom
Needle PL.U.S.	Needle Map, Needle Path, Opacity, Edge Enhancement

Cine Clip Capture and Review

Retrospective and prospective cine clip capture
Cine Clip buffer size (select modes):
B-mode: 5000 frames (approx)
CFI/CPI: 500 frames (approx)
PW: 500 columns (approx)

Prospective Clip Capture:
- Choice of 2, 5, 10, 30 sec, and 1 minute in conventional modes
- Independent control, up to 5 minutes in CEUS mode

Frame-by-frame image review of clips while frozen

Trackball play, fast-forward play and frame reverse

Trim frames from beginning or end of retrospective or prospective clips

Looping capability when scrolling in cine clip

Available in all Imaging modes including Dual

Annotation and Body Markers

Annotations:

Full annotations packages optimized for all Applications and Presets

Fully user-customizable text and text-replacement lists per preset

Default settings are optimized for the most commonly used annotations

Customized home cursor position per display format

Text Replacement and Text Replacement Groups

Title Text and Free Text options available

Automatic line-wrapping

Intuitive on-screen text editing

Freely re-position annotations

Easily insert words into existing annotations

Body Markers:

Full pictographic body markers packages optimized for all Applications and Presets

Rapidly depict and change transducer orientation directly on the body marker using the touch screen

One-handed transducer orientation marker adjustment

Fully user customizable packages and association per imaging preset

Biopsy Support

On-screen biopsy guidelines for the SC6-1, XC6-1, SE12-3 and SEV12-3 transducers

SE12-3 & SEV12-3: Guidelines at 2° and 3°

SC6-1, XC6-1: Choice of 4 biopsy angles: 14.8°, 20.4°, 26.6° and 33.7°

Biopsy mode disables AutoFreeze to enhance workflow

Guidelines correspond to appropriate CIVCO & Protek biopsy kits. See Accessories section for details.

Biopsy Beam Steering Control optimizes angle of incidence to enhance needle visualization during biopsies (Breast, Thyroid and MSK presets)

Measurements

Available in frozen, dual and clip images

10 unique cursors per image

Unique measurement features:

- Measurements can be performed directly on the touch screen using a fingertip or stylus
- Measurements can be made across Dual images at the same scaling
- Estimated measurements can extend beyond the image area
- Adjustable precision (number of digits)

Basic Measurements:

- Depth (mm or cm)
- Distance (mm or cm)
- M-mode Distance
- Distance Ratio
- Ellipse (major axis, minor axis, area, perimeter)
- Trace (area, perimeter)
- Curved Distance (mm or cm) in Panoramic Imaging only
- Volume by 3 Distances
- Volume by Ellipse + Distance
- Generic Velocity (Vel), Peak Velocity (PSV), End Velocity (EDV), MDV (Minimum Diastolic Velocity
- Time Average Peak Velocity (TAPV), Time Average Mean Velocity (TAMV)
- % Diameter Reduction
- % Area Reduction
- Doppler Trace for Time & Slope
- Doppler Time
- Q-Box™ tool with mean, max, min elasticity, Standard deviation, depth and Stability Index
- Q-Box Ratio™ tool to quickly compare tissue elasticity values
- Multi-Q-Box™ tool allows Q-Box placement across multiple images, even across freeze/unfreeze
- Q-Box Trace allows the user to measure using freehand shaped regions
- Body Mass Index calculation

- Heart Rate from M-mode or PW Doppler
- Body Mass Index
- Bosy Surface Area

Advanced Measurements:
- Volume Flow (Diameter and TAMV)
- ICA/CCA Ratio for Carotid Flow
- Automatic IMT Thickness measurement with optimization and editing control
- Manual IMT measurements
- PW Doppler Spectral AutoTrace
- Pediatric Hip tools (Hip Angle and d:D ratio)
- Congestion Index
- B-mode Ratio Grayscale Comparison Tool
- SWE Stability Index for Liver Stiffness assessment

3D Measurements:
- 3 Distance Volume, Ellipse and Distance Volume (MultiPlane view)
- Trace Collection Volume (MultiSlice view)
- Prostate volume tool on SEV12-3 Measure Then Label Capability
- Measurements can be launched via tools and assigned to a specific label

Cardiac Analysis*:
- Volume by area/length method
- Area, length, volume
- LV mass
- Simpson's single and biplane volume ejection fraction
- M-mode all points (LV study)
- M-mode ejection fraction (Teichholz and cubed)
- Peak velocity
- Maximum and mean pressure gradient
- Pressure half time
- E/A ratio
- Continuity equation
- Acceleration time
- Heart rate
Available in China only

Label Then Measure Capability:
- Measurements can be launched directly from a label
- Clearly identify common measurements on screen and in the report

- Common labels available for all clinical applications
- Bi-lateral measurement support for applications (e.g. Vascular) requiring paired measures

Full Suite of Obstetrics Measurements and Calculations:
- OB table import feature
- Multi-fetus capability (up to 5)
- Last Menstrual Period (LMP), Date of Conception (DOC) or Estimated Date of Delivery (EDD) manual entry and/or calculated
- Date of Delivery Calculations:
  o Estimated Date of Delivery (EDD) from Last Menstrual Period (LMP)
  o Estimated Date of Delivery (EDD) from Date of Ovulation
- Gestational Age estimated from LMP
- GA from measurements (tables and equations)
- Amniotic Fluid measurements and Index calculations
- Average Ultrasound Age (AUA) calculated from measurements
- EDD from AUA and EDD from DOC
- Estimated Fetal Weight from measurements
- Author selection for GA, EFW, Graphing:
  o Hadlock
  o Hansmann
  o Jeanty
  o Merz
  o Chitty
  o CFEF
  o ASUM
  o ISUOG (Leung)
  o ISUOG (Sahota)
  o McLeanan/Schluter
  o Robinson/Fleming
  o Verburg
  o Oken

- Biophysical profile data entry in Report
- Fetal growth charts with standard curves and plotted actual data in reports
- Ob growth trending
- Ob Percentiles
- Z-Scores
- Right and left Ovarian follicle measurement and counting tool in 2D and 3D (up to 16 follicles)

- Mean Sac Diameter

Pulse Wave Velocity Measurement Tool[3]

[3]*Pulse Wave Velocity measurement tool is not available in the USA*

Allows for the local measurement of the Pulse Wave Velocity in the carotid artery

Measures the Pulse Wave Velocity in the local imaging area, no need for pressure cuffs and accessory equipment

Utilizes UltraFast™ imaging to capture the pulse wave velocity along the arterial walls

Semi-automatic localization of the arterial segment

Parametric display of the pulse wave velocity over time

Automated calculation of the beginning of systole and end of systole pulse wave velocities

Available in the Vascular Carotid presets on the SL10-2, SL18-5 and SL15-4

Continue Exam

User configurable delay to End Exam:
- Midnight same day
- Midnight following day
- Never expires

Re-open an exam after it has been ended

Fully Append-able: Images, Measurements, Annotations, more...

New data is presented in separate series for tracking

Images cannot be deleted to prevent exam tampering

Study Review

Quick Study Review
- Image thumbnails on main display allow quick review
- Preview, Open or Delete images instantly
- Full Study Review
- Selectable study list with TouchRing™
- Display study images in 1, 2, 6, 12 and 20-up formats
- Replay cine-clips in real-time
- Export images directly to USB in JPEG format
- Export MPEG4 cine-clips directly to USB in High Definition (H264 or compressed format)

Worksheets

BI-RADS® Clinical Reporting:

Integrated ACR BI-RADS® lexicon available during the current study
- Fully licensed from the American College of Radiology (ACR)
- Available in the Breast clinical application
- Per lesion BI-RADS® reporting: Up to 8 lesions can be characterized per study
- BI-RADS® results, images and measurements are fully integrated into the Report worksheet

Thy-RADS™ Clinical Reporting:

Thy-RADS™ worksheet available during the live study
- Based on input of expert leaders in Thyroid imaging
- Available in the Thyroid clinical application
- Per nodule Thy-RADSTM reporting: Up to 12 nodules can be characterized per study
- Thy-RADS™ results, images and measurements are fully integrated into the Report worksheet

Clinical Report Worksheets:

Three worksheets available to facilitate obstetrical and gynecologic reporting:
- Early OB
- Gen OB
- GYN

Five worksheets available to facilitate vascular reporting:
- Carotid
- Upper Extremity Arterial
- Lower Extremity Arterial
- Upper Extremity Venous
- Lower Extremity Venous
- Abdominal Aorta
- TCD

Anatomical images with associated lateral measurements

Patient information automatically populated from study data

Measurements automatically populated via labeled measurements workflow

Large, easy to read design
Locations for key biometrics BP, ABI, etc.
SRU/Nascent criteria included for reference
Toolbox to document Plaque assessment
Printable on a single paper sheet
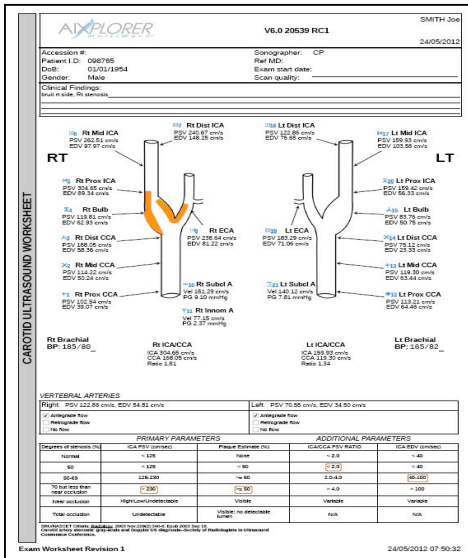
Report Worksheet for Liver:

- Includes Labeled Q-Box Liver measurements in kPa and m/s
- Patient Info and Body Mass Index
- Mean of the Means, Median, IQR, SD, depth, Diameter and Stability Index values
- Selection of Liver fibrosis article and cut-off values table per etiology.
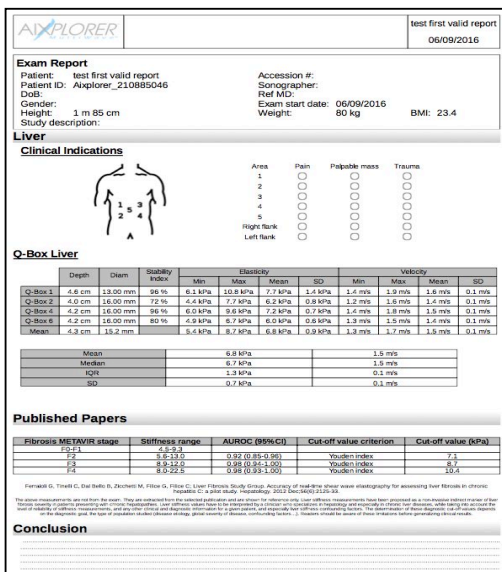
Configurable Reporting

ReportBuilder™ allows the user configurability of the information presented in the Report worksheet:

- User-uploadable hospital logo from USB media for Report header
- Integrated patient history from Patient Data entry screens
- Per image reporting with data reconciliation tools
- Measurements hyper-linked to study images for quick review
- Generous freeform text areas for exam comments and conclusions
- Report preview
- Export reports directly to USB as a Portable Document Format (PDF) file or to DICOM devices as encapsulated PDF files

ReportBuilder™ configurable components:
- Patient history
- Images
- Measurements
- BI-RADS®
- Thy-RADS™
- Carotid, Lower/Upper Extremity Arterial and Venous, Abdominal Aorta Worksheets
- Reports
- Comments
- Selection of Liver fibrosis reference articles with display of cut-off values table

Full Obstetrics Reporting including:
- Hospital and Study Information
- Patient Information and History
- Key Dates such as LMP, EDD, DOC, etc.
- Ob Measurements
- Ob Calculations
- Estimate Fetal Weights and Graphs
- Unlabeled Measurements and Images
- Fetal Biometry Data
- Ovarian Follicle count
- Ob growth trending
- Ob Percentiles
- Z-Scores

DICOM & Connectivity

10/100/1000 BaseT Ethernet compliant connectivity
DICOM grayscale or color print
LUT DICOM GSDF control (9 settings)
Digital Video Tests Patterns (11 patterns) to aid user in evaluating PACS display monitor calibration
Selectable order of images to be exported and printed

Aixplorer Ultimate conforms to the following IHE Standards:
  • Scheduled Workflow Integration Profile:
    • Performed Procedure Step Exception management
    • Broad Worklist Query
    • Patient Based Worklist Query
  • Patient Information Reconciliation Profile
  • Consistent Time
  • IHE "Connectathon" validated

DICOM Storage Service Class:
- Allows connectivity to PACS
- Allows "send-as-you-scan", "end of exam" or manual transfer of study data
- Color, Monochrome and mixed Color/Grayscale image export options
- Dedicated DICOM LUTs

DICOM Modality Worklist (MWL):
- Auto-population of Patient Data Entry screen from hospital HIS/RIS server
- Sort or filter Worklist according to patent information (Name, ID, Date/Time, etc.)
- Capability to manage simultaneously several MWL servers with independent Query configuration
- Show Date/Time of last MWL query in offline mode
- Automatic MWL Query options
- Configurable default Query option (broad, Patient or Last used).
- Patient-based MWL Query options using patient last name, character wildcards, etc.
- 3 MWL update options: Manual, Periodic or Smart update
- Use MWL off-line during portable exams
- Search field can be used with Barcode reader selection to filter by ID.

DICOM Modality Performed Procedure Step (MPPS):
- System receives and transmits info relating to the patient study and care cycle DICOM Storage Commitment Procedure (SCP)
- Provides commitment from the storage device that study data has been successfully transferred

DICOM Query and Retrieve (Q/R):
- Query the PACS server for previous exams
- Full native data query and retrieve:
- Ultrasound, Mammography, CT, MRI, X-Ray, Angiography, Nuclear Medicine, Radiofluoroscopy, Computed Radiography, PET
- Retrieve Secondary Capture SOP Class images
- Automatically searches for previous exams of the current patient
- Easy to use search and retrieve tools for any patient
- Automated query and retrieve using MWL patient data
- Filter specific queried image types
- Disable multi-frame image sets for faster retrieve
- Retrieved images can be displayed side-by-side with real-time ultrasound on Aixplorer Ultimate
- Easy scrolling through stacked data (MR, CT, PET) using the unique Touch Ring control
- Compatible with all DICOM ultrasound images from Aixplorer Ultimate or other vendors
- Push mode capability to push DICOM datasets from a PACS or DICOM modality
- DICOM import from media

DICOM Structured Report Export (SR):
- Export Ob-Gyn and Vascular labeled measurements to off-line reporting systems
- Compatible with Nuance PowerScribe 2.1 and prior versions

DICOM Compression Options:
- Uncompressed
- JPEG lossless
- JPEG lossy with configurable quality factor
- JPEG-LS lossless
- JPEG-2000 lossless
- Format size reduction

DICOM Export to Media:
- Export studies in DICOM format to CD/DVD and USB Devices
- Allows "print-as-you-scan" or "end-of-exam" printing to DICOM print devices
- Compatible with the most common DICOM printers (AGFA, KODAK, etc.)
- DICOM Conformance Statement URL: http://supersonicimagine.com/dicom
- Sample DICOM data URL: http://www.supersonicimagine.com/Images
- IHE Integration Statement URL:
- http://supersonicimagine.com/ihe

Patient Privacy Features

Export images with or without patient sensitive identification

"Hide" patient identification on-screen during the exam

Hide/Show Exams control to filter Patient Directory and minimize exposure of sensitive information

System Configuration

Personalized Institution Header for Reports

Flexible Regional settings for Language, Keyboard and On-board Help

Screensaver Option

Date & Time can be synchronized via NTP server

Adjustable Control Panel lighting

Adjustable System AutoFreeze Time (4, 6, 8, 10 minutes)

Auto activation of Annotations, Body Markers, or Measurements on Freeze

User-controlled correlation/decorrelation of Color Doppler and PW scales

Configurable Annotations Libraries

Configurable Body Marker Libraries

Configurable Clinical Presets

Configurable Measurement Packages

Metric or English Units

Retrospective Loop length and Compression adjustable

Automatic Hard Disk Maintenance

Connectivity Association and Setups

Diagnostics and Service Access

Medical Staff manager for study association

Anonymous Exam warning

Automated or Manual focal zone adjustment

Auto-Adaptive TGC option

Auto activation of Display of ManualTouchTGC™

Footswitch configuration

Sound Options

Rotation of Depth, Focus and Steering controls

Data Management

Internal hard drive(s) for image and data storage

Configuration: 2 hard drives configured for maximum storage and performance

Hard disk capacity: 500 GB x 2

Image storage: 28000 images (estimated)

Study storage: 2800 typical studies (10 images and data)

Note: UltraFast^{TM} Doppler and Angio PL.U.S. Data storage may reduce overall system storage capacity

Data Export

Export images to CD, DVD, and USB memory device:
- JPEG image /AVI-H264 Export to USB memory, CD/DVD
- Organized directory structure to quickly find exported studies

Export Reports directly to USB as a Portable Document Format (PDF) file

Web-based DICOM viewer integrated into all DICOM media exports

Format a USB key on-cart feature

SonicResearch™ Package[4]

[4]*SonicResearch Package is not intended or approved for diagnostic use.*

Per-channel RF data access

UltraFast™ and Conventional RF data acquisition available

Configurable transmit and receive parameters

Output 2D data in RAW or Beamformed IQ data

Output 3D data as pre or post scan-converted Beamformed B-mode data

Data is exported as a binary file and XML file via a USB connection

Customizable sequences for B-mode and SWE raw data acquisition after validation by superSonic Imagine

Sequences downloadable via ethernet, Data downloadable via private FTP server

Matlab® script compatible for reading and analyzing RF data

Matlab® library to open and process Raw data

Optional Triggering In/Out hardware available

Remote control via an external computer of Aixplorer Ultimate's basic control functions

Available on SL15-4, SL18-5, SC6-1, XC6-1, SLV16-5, SL10-2, SMC12-3, XP5-1, SE12-3, SEV12-3 and SL22-7lab transducers.

Clinical Data Export

Export ultrasound study data to facilitate clinical research studies
- Export data from selected studies in the patient directory to removable media (USB)
- Data can be exported in Aixplorer Ultimate's Users Club (XML) or CSV (Excel) formats

Peripherals & Ports Printer

USB Thermal image printers supported:
- Sony Black & White model A7 UP-D711MD
- Sony Black & White model A6 UP-D898DC
- Sony Black & White model A6 UP-D897MD (off-cart use only)
- Sony Black & White model UP-D898MD (off-cart use only)
- Sony Color model UP-D25MD
- Sony Color model UP-D23MD

Network external plain-paper image/report printers supported:
- Xerox Phaser model 8560AN/8570AN
- Xerox ColorQube 8550
- HP Laserjetpro 400 M451DN
- HP CP2025dn Color Laser
- HP P2025dn Black & White LaserJet
- OKI c531dn A4 color printer

DICOM Printers: Various
Green Print Capability: 8 print layouts to conserve resources

Selectable order of images to be exported and printed

USB/Ethernet Ports

4 USB ports allow image export to memory stick or portable hard drive:
- 1 convenience port on rear of control panel
- 1 footswitch port on front side
- 2 ports on rear side of cart

1 patient isolated Ethernet port (100 mbps)

DVD/CD

Integrated 28x DVD/CD read/write player/burner
Compatible with DVR-R, DVD+R, DVD+RW, DVD-RW, CD-RW and CD-R

Wireless connectivity[5]

[5]*Wi-Fi not available in all countries*

Compliant with 802.11b/g/n standard
WPA/WPA2 Personal security
2.4GHz band frequency
Wi-Fi device FCC/IC/CE certified.
Wireless networking for DICOM modalities and network printer connection.

Video Output

Integrated Digital Video Output (DVI) port for secondary display
Native High Definition Output: 1920x1080

Footswitch

Two-function footswitch:
- Easily connects to front-side USB port
- Programmable from a set of frequently used operations

Accessories

Transducer Cable Assist:
- Assists in removing the transducer cable weight from the operator and patient when scanning
- Particularly useful for 3D and SWE scanning

Transducer Holders and Connector Holder
- Facilitates on-cart storage of additional transducers
- Durable and washable

Gel warmer Thermasonic from Parker
Heating up to 38°C

Biopsy Accessories and Kits available through CIVCO and Protek for various applications: Breast, Prostate, and Liver

Barcode reader Jadak HS-1M
- Design for healthcare application and environment.
- Durable and cleanable

Language Support

User Controls supported in five languages: English, French, German, Italian and Spanish

On-screen User's Guide (Help) available in five languages: English, French, German, Italian and Spanish

On-screen keyboards supported in seven languages: English, French, German, Italian, Spanish, Swedish and Russian

Remote Service Diagnostics Support

Remote access to the Aixplorer Ultimate to send and execute scripts

Capable of retrieving and analyzing logs files, and backing up the system configuration

Electrical/ Environmental Specifications

Dual Switching Power Supply

Power consumption:
- 100-240 VAC 50 Hz / 60 Hz, 480 W in standard use. 600 W fully loaded

Temperature Workload >> 1706 BTU

Temperature Range:
- Operating: 15 - 35°C (59 - 95°F)
- Storage: -20 to +50°C (-4 to +120°F)

Humidity Range:
- Operating: 30 - 80%
- Storage: 30 - 80%

Pressure Range:
- Operating: From 700 hPa to 1060 hPa
- Storage: From 500 hPa to 1060 hPa

Optimized cooling fan architecture with minimal audible noise (43.4 dB)

Standards Compliance

SuperSonic Imagine is ISO 13485 certified.

Aixplorer® Ultimate is a Medical Device in Class II per the FDA and in Class IIa per the European Medical Directive.

Aixplorer® Ultimate is FDA cleared and has received CE Mark approval.

Aixplorer® Ultimate conforms to the Digital Imaging and Communications in Medicine (DICOM) standard: PS 3 -2009

Aixplorer® Ultimate is compliant with the following Quality Standards for Medical, Electrical, Electromagnetic Interference and General Safety:
- CAN/CSA-C22.2 No. 601.1-M90
- IEC/EN 60601-1, 60601-1-1, 60601-1-2, 60601-1-4, 60601-1-6, 60601-1-8, 60601-2-37
- IEC/EN 61340-5-1, 5-2
- IEC 62304
- EN ISO 10993-1
- EN ISO 14971

- EN 50419
- IEC 62366
- NEMA UD 2, UD 3

Internal Protection Marking:

IPx0: Aixplorer® Ultimate

IPx1:

- Footswitch Pedal
- SL10-2, SL15-4, SMC12-3, XC6-1, and SLV16-5 transducers.

IPx7:

- SE12-3, XP5-1, SLH20-6 and SEV12-3

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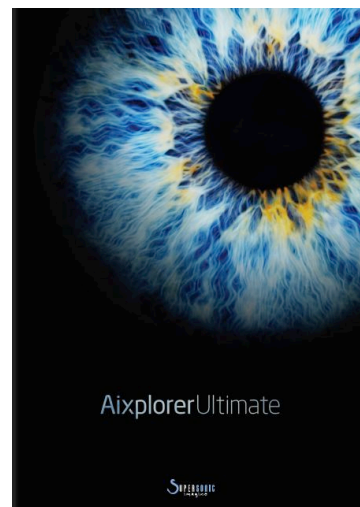
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