

# Imagyn I9 Diagnostic Ultrasound System

## Performance Specifications

### System Overview

#### Advantages of ZST<sup>+</sup> platform

- Advanced Acoustic Acquisition
- Dynamic Pixel Focusing (DPF)
- Sound Speed Compensation (SSC)
- Total Recall Imaging (TRI)
- Powerful Processing Architecture
- Enhanced Channel Data Processing
- ZONE Sonography<sup>®</sup> Technology
- Up to 8,257,536 channels

#### Application

- Obstetrics
- Gynecology
- Pelvic Floor

#### Transducer Types

- Curved array transducer
- Linear array transducer
- 4D Volume transducer

#### Advanced Imaging Techniques

- THI (Tissue Harmonic Imaging) and PSH<sup>™</sup> (Phase Shift Harmonic Imaging)
- iBeam<sup>™</sup> (Spatial Compound Imaging)
- iClear+
- iTouch<sup>™</sup> (Auto Image Optimization)
- Echo Boost<sup>™</sup>
- Zoom/iZoom (Full Screen Zoom)
- FCI (Frequency Compound Imaging)
- B steer
- ExFOV (Extended Field of View)
- HD Scope
- Smart Track
- HR Flow<sup>™</sup> (High Resolution Flow)
- Glazing Flow

#### Imaging Modes

- B-Mode
- M-Mode/Color M-mode
- Color Doppler Imaging
- Power Doppler
- Imaging/Directional PDI
- Pulsed Wave Doppler

#### Function Modes

- iScape<sup>™</sup> View (Panoramic Imaging)
- UWN+ (Ultra Wideband Non-linear Plus) Contrast Imaging<sup>™</sup>
- Contrast Imaging QA (Quantitative Analysis)
- STE Imaging (Sound Touch Elastography)
- STQ Imaging (Sound Touch Quantification)
- Endocavity STE
- High frame rate STE
- Smart 3D<sup>™</sup> (Freehand 3D)
- Real-time 4D
- iPage+ (Multi-Slice Imaging)
- STIC (Spatial-Temporal Image Correlation)
- SCV+ (Slice Contrast View)

Smart-V<sup>™</sup> (Smart Volume)

Smart V Trace

Color 3D

Niche

iLive

Smart Planes CNS

Smart Planes FH

Smart Face

Smart ICV

Smart Scene 3D

DICOM

Clinical Measurement Package

Smart Pelvic Floor

Smart OB<sup>™</sup> (Auto OB measurement)

Smart NT<sup>™</sup> (Auto NT measurement)

Smart Fetal HR (Fetal Heart Rate)

Smart FLC

IVF

Smart Trace

iNeedle<sup>™</sup> (Needle Visualization Enhancement)

#### Other Features

- Ultrasound gel
- Ultrasound gel warmer
- Built-in wireless adapter
- Replaceable battery assembly
- Central brake
- Probe adapter
- DVD assembly
- Wipes box bracket
- DVR
- Ambient light
- iStorage
- iWorks<sup>™</sup> (Auto Workflow Protocol)
- MedSight
- MedTouch
- UltraAssist (Off-line software)
- UltraView<sup>™</sup> (Off-line analysis software)
- Touch gestures
- Anti-virus software: McAfee, Window

#### Language Support

Software: English  
Keyboard input: English

#### Physical Specifications

##### Dimension and Weight

The control panel and the monitor are in the lowest position

Configured with floating support arm and 23.8 inch monitor

Depth:	1020±20 mm;
Width:	550±10 mm;
Height:	1000±20 mm
Weight:	105 kg±4 kg (net weight, standard configuration but not including the probe)



#### Audio Speaker

Stereo audio speakers

#### Dual-wing floating support arm

Rotate angle: 90±5 degrees (to the left);  
150±5 degrees (to the right)

Tilt angle  
(when positioned  
vertically): 20±5 degrees (backward);  
85±5 degrees (forward)

From front to back: 300±20 mm

From bottom  
to top: 150±20 mm

#### Wheels

Diameter: 125 mm

When the central  
brake is not  
configured: 3 castors for total lock and  
break, and 1 castor for  
direction lock and break

#### Transducer Port and Holder

Transducer ports  
with dust  
prevention: 5 active ports and 1 pencil  
probe port

Support hot plug with active indicator lights

Transducer holder: 5, plus 1 dedicated endocavity  
transducer holder and 1  
dedicated pencil transducer  
holder

#### Electrical Power

Voltage: 100-240 V~

Frequency: 50/60 Hz

Power consumption: 650 VA

## Performance Specifications

### Physical Specifications (continued)

#### Operating Environment

Ambient temperature:	0-40° C
Relative humidity:	20%-85% (no condensation)
Atmospheric pressure:	700 hPa-1060 hPa

#### Storage & Transportation Environment

Ambient temperature:	-20-55° C
Relative humidity:	20%-95% (no condensation)
Atmospheric pressure:	700 hPa-1060 hPa

#### System Noise

≤26 dB @25° C

### User Interface

#### Floating control panel

Brightness adjustable for the backlight of the whole control panel

Full-sized, backlit QWERTY keyboard

iConsole: intelligent control panel for clinical-exam specific layout and adaptive adjustment: 6 programmable E-ink keys for dynamic display of user-defined functions

Automatic light indication for residual battery power  
Full-space floating control panel adjustment and can be fixed at any position (when centered in the trackball):

Left/right rotation:	180±5 degrees (90 degree for both left and right)
Left/right adjustment:	1100 mm±50 mm (550 mm for both left and right)
Down/up adjustment:	300±20 mm
Front/back adjustment:	350±20 mm

#### Monitor

23.8-inch bezel-less LED monitor with high resolution

Resolution: 1920x1080  
Viewing angle: 178 degrees

Digital on screen display of brightness and contrast controls

Automatic adjustment of monitor light with the changing environment

Automatic LED brightness

Tilt/Rotate independent adjustment

Tilt angle range: 105 degrees

Rotate angle range: 240 degrees

#### Touch Screen

15.6-inch high sensitivity antiglare color touch screen

Resolution: 1920\*1080  
Digital brightness and contrast adjustment through preset

Angle adjustable range: 40 degrees

Viewing angle: 170 degrees

Support touch screen gestures

Support either hand writing or with gloves on

Editable buttons: long press to add, delete or move buttons

Moveable 3D/4D tabs

Clinical scenario-based 3D/4D user interface

Digital TGC

Short-cut switch of latest used probe & exams

#### Touch gestures

Swipe down/up: display/remove projected image on touch screen

Swipe horizontally: page up/down or review images/cine loops one by one

Swipe from left edge to right: display hidden menu on projected image

Image parameter adjustment

Measurement on projected image on touch screen

Zoom in/out the projected image on touch screen

Rotate or erase on projected 3D/4D image on touch screen

8 user defined gestures using two fingers for more functions, such as freeze, print, activate specific imaging modes, measurements, and some other special functions

#### System boot-up

Boot-up from shut-down: <30 sec

Boot-up from stand-by: <5 sec

Shut-down: <30 sec

#### Comments

Supports text input and arrow

Voice annotation: record voice as annotation for images and cine

Support freehand marking on touch screen

Adjustable text size and arrow size

Supports home position

Covers various application

User customizable

#### Bodymark

More than 232 bodymarks for versatile application

User customizable

### Imaging Parameters

#### Overview

Echo-enriched Beamforming

Up to 55296 channels

Up to 8-beamforming

### B-Mode

Display formats:

Single(B)

Dual (B+B), support by B/ M/ Color/ Power/ PW CW/ Color M mode

Quad (4B), support by B/ Color/ Power

iClear™/ iClear+:: Off; 1-7, 7 steps

iBeam™: Off, 3 steps

iTouch™: On/off

FCI (Frequency Compound Imaging)

Dual Live: On/off

Imaging Parameters

### Imaging

Image quality: Pen/Gen/Res/HPen/HGen/HRes/HGen-FFR/HRes-FFR (dependent on transducer)

B steer: 5 levels, available on linear transducers

ExFOV: off, 1-2 (dependent on transducer)

Depth: 30 levels, 1.5-40 cm

Frame rate (max): 1701 f/s

Acoustic output power: dependent on transducer

TGC/LGC: 8 segments on touch screen

Dynamic range: 30-260 (dependent on transducer)

Gain: 0-100, 1/step

FOV: continuously adjustable

Line density: L/M/H/UH

Persistence: 0-7 levels

Horizontal Scale: on/off

L/R flip and U/D flip: on/off

Rotation: 0°, 90°, 180°, 270°

TSI: general/muscle/fluid/fat

Gray Map: 8 types

Tint map: off, 8 types

Echo Boost: On/Off

Smooth: 0-6 levels

HD Scope: off, 1-3 levels

SSC (Sound Speed Compensation): On/Off

Free view: -45°~45°, 5°/step

Dehaze: 0-30 levels

Ref Lines: on/off (under GYN and Pelvic Floor exam mode and using intracavity probe)

V 1:1: on/off (available on linear probe under dual-split mode)

ExtImage: On/Off

Auto Merge: On/Off

ZoneVue

Edge enhance: 0-6, 1/step

### THI and PSH™

Patent PSH™ technology, obtains purer harmonic, better contrast resolution, higher SNR, exceptional high frequency harmonic

iClear™ available

## Performance Specifications

### Imaging (continued)

Image quality:	HPen/HGen/HRes or HPen/HPen-FFR/HGen/HRes/HRes-FFR (depends on transducers)
Echo Boost™:	On/Off

### M-mode

Display formats:	V2:3, V3:2, V3:1, H2:3, Full (V: vertical, H: horizontal)
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Color M-mode available

Acoustic output power:	same as B
Depth:	same as B
Dynamic range:	30-180, 5/step
Gain:	0-100, 1/step
M sweep speed:	6 steps
M soften:	0-4, 1/ step
Tint map:	off, 8 types
Gray Map:	8 types
Edge enhancement:	0-3, 1/ step

### Color Doppler Imaging

Dual live:	On/Off
HR Flow™:	High Resolution Flow provides better image quality and flow sensitivity

Image quality:	Pen/Gen/Res (color), 1 level (HR Flow)
Max velocity:	146.5 cm/s
Steer:	available on linear transducer
Max frame rate:	529 f/s
Acoustic output power:	same as B mode
Gain:	0-100, 2/step
ROI size/position:	adjustable
Scale:	max. 30 steps
Baseline:	-8 – 8, 1/step
Wall filter:	8 steps, 5-433 Hz
PRF:	0.1-12.6 kHz
Packet size:	0-3, 1/step
Flow state:	L/M/H
Smooth:	0-6, 1/step
B/C align:	On/Off
Priority:	0%-100%, 1%/step
Color map:	V0-V10; VV0-VV9
Invert:	On/Off
Auto Invert:	On/Off
Persistence:	0-6, 1/step
Velocity tag:	On/Off
Line density:	L/M/H/UH
iTouch™:	on/off
Smart track:	On/Off
Glazing Flow:	On/Off, L/M/H

### Power Doppler Imaging

Dual live:	On/Off
HR Flow™:	High Resolution Flow provides better image quality and sensitivity Support directional power Doppler
Image quality:	Pen/Gen/Res (Power), 1 level (HR Flow)

Acoustic output power:	same as B
Dynamic range:	10-70, 5/step
Gain:	0-100, 2/step
ROI size/position:	adjustable
Steer:	available on linear transducers
Scale:	max. 30 steps
Wall filter:	8 steps
PRF:	max. 12.6kHz
Packet size:	0-3, 1/step
Flow state:	L/M/H
Smooth:	0-6, 1/ step
B/C align:	On/Off
Priority:	0%-100%, 1%/step
Color map:	4 types
Directional color map:	4 types
Persistence:	0-6, 1/step
Line density:	L/M/H/UH
Invert:	On/Off
iTouch™:	On/Off
Smart track:	On/Off
Glazing Flow:	On/Off, L/M/H

### PW-Mode

Display formats:	V2:3, V3:2, V3:1, H2:3, Full, Duplex/Triplex (PW only) (V: vertical, H: horizontal)
Image quality:	Pen/Gen/Res
PW velocity:	max. 8.681 m/s min. 2.03 cm/s
Sample volume size:	0.5-30 mm (PW only)
Sample gate depth:	continuously adjustable
Baseline:	9 steps
PW Steer:	available on linear transducer
Volume:	0%-100%, 2%/step
PW PRF:	1.0-23.1 kHz
Gain:	0-100, 2/step
Dynamic range:	24-72, 2/step
Sweep speed:	6 steps
Wall Filter:	0 ~ 9 steps
Invert:	On/Off
Auto invert:	On/Off
Angle correction:	-89~89 degrees, 1/step
Quick angle:	0, -60, 60 degrees
Gray map:	10 types
Tint map:	Off; 8 types
Time/frequency resolution:	0-6, 1/step
HPRF:	On/Off
Auto calc:	On/Off
Auto calc cycle:	1, 2, 3, 4, 5
Auto Calc Loop	
Trace Sensitivity:	0-5, 1/step
Trace Smooth:	Off, 1-4, 1/step
Trace area:	Above, Below, All

### iBeam™

Spatial compound imaging	
Off, 1-3, 1/step	

### iClear™

Speckle suppression imaging	
Available on B, 3D, 4D mode	

### iTouch™

Auto image optimization	
B-mode:	gain, TGC, dehaze
Color:	gain, color box position
Power:	gain
PW:	gain, scale, PRF, WF, SV size, SV position, steering angle
Contrast imaging:	gain

### Zoom

Zoom:	Spot zoom (write zoom), Pan zoom (read zoom) 0.8x-10x
iZoom:	convertible 3 steps; normal image, zoom standard area, zoom only image area

### QSave

Quickly save image parameter setting after image adjustment done	
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Support Save, Create, Restore

### IP (Image Process) Preset Manager

Support save, create, restore or delete IPs  
Quickly switch to different exam modes without returning to B mode

A default set of image parameters under each IP are provided for different exam modes

Only image parameters are switched while measurements, comments, and bodymarks remain the same

### 3D/4D Preset Manager

The scenarios and subpresets can be renamed, restored, deleted, added, set to active, or moved

Show scenario and subpreset parameters

Provide multiple groups of preset 3D/4D parameters based on different application scenarios to quickly obtain expected image effect

### Smart 3D™

#### Smart 3D

Acquisition preparation:

3D/4D Scenario setting:	Routine
Acquisition Methods:	Rocked, Linear
Reset VOI:	On/Off
Flip VOI:	On/Off
Angle:	10-80°
Distance:	10-200 mm
Acquiring Time:	1.0s-20.0s

#### VR:

3D/4D Scenario:	Routine (Surf., iLive Gen., iLive Transp., Skeleton)
Reset:	All, Orientation, Curve
VOI:	On/Off/Fixed
Active quadrant:	A, B, C, VR
VR orientation:	0°, 90°, 180°, 270°
Flip:	flip VR

## Performance Specifications

### Imaging (continued)

Sync:	synchronize VR with selected plane
Orientation Assist:	On/Off
Threshold:	0-100%, 1%/step
Opacity:	0-100%, 5%/step
Brightness:	0-100%, 2%/step
Contrast:	0-100%, 2%/step
Smooth:	0-10, 1/step
Depth VR:	Off/Black/Cyan/Blue/ Rose
Tint:	off; 8 types
Degree:	10-80°
Distance:	10-200 mm

#### MPR:

Active quadrant:	A, B, C
Gray Map:	1-8
Brightness:	0-100%, 2%/step
Contrast:	0-100%, 2%/step
iClear:	Off; 7 types
Tint:	Off; 8 types
Thickness:	0-30 mm

#### Adv.:

Direction:	Up/Down, Left/Right, Front/Back, Down/Up, Right/Left, Back/Front
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VR Refine: Off; 7 steps

Surface enhance: 0-7, 1/step

MagiClean: Off/Low/Mid/High/Max

Inversion: On/Off

A3:1: On/Off

Move light: On/Off

Degree: 10-80°

Distance: 10-200 mm

Main render: Surface, Max, Min, X Ray, iLive

Sub render: Surface, Max, Min, X Ray

Mix: Set the mix ratio of the two render modes

#### Tool

##### Edit:

Rubber: On/Off

Eraser Diameter: 8-80, 1/step

Cut (area selection): Polygon, Contour, Rectangle, Line

Undo: Undo, Undo All

#### 3D Layout:

Niche Views: Inner, Outer

3 Slice

Active Quadrant: A, B, C,

Niche/3 Slice

Auto rotation:

Position: Set Start/Set End

Direction: Left/Right, Up/Down

Step: 1-15°

Quick Angle: 30-180°

Rotation control: play, single loop, loop

Save AVI to USB

### 4D

Available on all volume transducers

Static 3D and real time 4D

Acquisition preparation:

4D frame rate: max. 80 vps

3D/4D Scenario

setting: Smart Scene3D (Spine, Brain, Long Bone, Face, Endometrium, Pelvic), Routine, iLive Pro, Bone, Tissue (not all scenarios are listed)

Refresh: On/Off

Angle: 10-120°

Quality: low1, low2, mid, high1, high2

Other parameters are the same as Smart 3D

#### VR:

3D/4D Scenario: Smart Scene 3D, Routine, iLive Pro, Bone, Tissue, Routine (not all scenarios are listed)

3D iClear: Off; 7 steps

Face+: Off, 3 steps

Auto Play: Stop, x1, x2, x3, x1/2, x1/3

Frame: Select a frame

Other parameters are the same as Smart 3D

#### MPR

3D iClear: Off; 7 types

Other parameters are the same as Smart 3D

#### Adv.:

The parameters are the same as Smart 3D

#### Tool

The parameters are the same as Smart 3D

#### 3D Reference Point

Enable the operator to define one or more reference points on MPRs, which are then projected to VR image; helpful for the operator to better understand the corresponding spatial relations of VR image and MPRs

Display: Point only, H line, V line

Delete All

Hide All

#### Color 3D

Available on volume transducers Supports Color and Power mode

Only Available in Static 3D mode

#### STIC

Color STIC available

Acquiring Time: 7.5-17.5s

Support iPage+ viewing

CMPR available

SCV+ available

3 Slice and Niche available

#### iPage+

Slice display mode: Slice only, Slice with SCV

RefMPR: A Plane, B Plane, C Plane

Reset Ori: On/Off

Sync MPR: A/B/C

Quick Rotation: 90°, -90°, -180°

Slice layout: 2\*2, 3\*3, 4\*4, 5\*5

Slice Number: 3-25

Spacing: 0.5-10mm

Line (Start)/Line (End)

Single window

Display Ref plane

Hide Ref plane

Vertically display ref plane

Horizontally display ref plane

Move plane

#### SCV+

Reset: All

Orientation Assist: On/Off

Active Quadrant: A, B, C

Main render

modes: Surface, Max, Min, X-ray

Sub render

modes: Surface, Max, Min, X-ray

Mix: Set the mix ratio of the two render modes

#### CMPR

Reset Curve

Undo Last

Flip: Thickness, Direction

Ref. Image (A B, C), 1, 2, 3

Trace Options: Line, Trace, Spline

Quick Rotation: 90°, -90°, -180°

Hide Annotation

Rotate RL

Support labeled measurements

#### iLive

Shading: 0-10, 1/step

Grad View

Hyaline: On/Off, 0~100%, 5%/step

Move Light

Light Position: 6 default positions selectable

Light 1/2/3: Parallel, Point, Torch

VL Saturation: 0~100%, 1%/step

VL Hue: 0~100%, 1%/step

VL Distance: 0.0 - 5.0

VL Bright: 0~100%, 1%/step

VL Angle: 0~100%, 1%/step

Tint: 0-4

Reset

Classic/IntPoint/ExtPoint/Parallel/ Torch/ 3-Light/ User 1/User 2

Copy to: Copy the current lighting mode to customized lighting mode "User 1" or "User 2"

#### Smart Planes CNS

Detect automatically the standard sections of TCP, TTP, MSP and TVP

Rotation around X/Y/Z axes

Hide line: On/Off

Reset: All planes/current plane

Auto comment

supported: A(anterior), P(posterior), L(Left), R(Right), U(Up), D(down), CSP, T, CH, CV, CM, LV on TCP, TTP, MSP and TVP

## Performance Specifications

### Imaging (continued)

Auto measurement supported:	TCD and Cist Maga (CM) on section TCP; BPD, OFD and HC on section TTP; LVW on section TVP Support editing measurement results
Hide Measure:	On/Off
MSP adjust:	A/B/C
Support comment and bodymark on sectional plane	
Font Size:	Small, Medium, Large
Smart ICV	
Measure fetal cerebral volume automatically	
Smart Planes FH	
Detect automatically left ventricular outflow tract view, right ventricular outflow tract view, LAV-DA view, 3VV-T view and stomach bubble view	
Navigate:	On/Off
Fetal heart:	Stomach, 4 chamber, LVOT, RVOT, Ductal Arch, 3VT
Quick Adjust:	-10-10
Smart Face	
Recognize fetal face automatically and then display the face in a recommended viewing angle	
AutoDirect	
MixRender:	0~3
Erase size:	0-2
Eraser:	For Rubber/Re-Rubber
SubTint:	1-4
FaceContact:	-15~15
VR Orientation:	0°, 90°, 180°, 270°
Smart FLC (Smart Follicle)	
Automatic follicle calculation	
Edit ROI and detect follicle contour automatically	
Undo:	Undo, Redo, Undo All
Active Quadrant:	A, B, C, Follicle, Left, Right
Calc:	On/Off
Edit ROI:	On /Off
Edit:	Divide, Merge, Add/Del
Save to Report	
Smart-V™ (Smart Volume)	
Auto 3D volume calculation	
Smart-V ROI:	Manual ROI on A, B, C planes separately
Smart-V Trace:	Manual trace on A, B, C planes separately
Smart-V Vocal:	Separately Trace contours on each slice that is generated by rotation
Smart-V Parallel:	Separately Trace contours on each slice that is generated by translation
Display:	2D, 2D&C
Trace Mode:	Smart Trace, Spline, Trace, Control Point
Window format:	1*1, 3*2, 3*3, 4*3
Shell:	Inside, Outside, Sym

Auto detect contour of target  
Volume result shows in result window  
Reset: Orientation  
Active Quadrant: A, B, C, Smart-V  
Support MRP measurement

### Smart Scene 3D

As an intelligent scenario oriented volume scan technique, it automatically enables the identification of tissue characteristics and provides an organ-specific diagnosis with full stack intelligence from imaging optimization, planes acquisition, quantification and with automated workflow throughout whole procedure

Available in fetal brain, fetal face, spine, long-bone, endometrium, and pelvic floor

Not available on Smart 3D mode

Adjust ROI size and position automatically and activate appropriate render modes according to the recognized anatomical structure of certain organs

### iScape™ View

Acquisition method: B and Power  
Supports speed indicator  
Actual size: On/Off  
Fit size: On/Off  
Ruler: On/Off  
Tint map: Off; 8 types  
Rotation: 0~355 degrees, 5/step

### iNeedle

Needle visualization enhancement  
Available on linear SC6-1s, and C6-2Gs probes  
Needle direction: Auto, Left, Right  
B/iNeedle: On/Off  
In-plane biopsy and Out-plane biopsy  
GPS real-time guiding biopsy

### UWN+ Contrast Imaging™

UWN+ (Ultra Wideband Non-linear Plus) contrast imaging technology, which provides exceptional contrast agent detecting capability, not only extracts second harmonic, but also nonlinear fundamental signals

Available on SC6-1s, SC8-2s, C11-3s, C6-2Gs, L9-3s, L14-3Ws, L20-5s, V11-3Hs, SP5-1s, SD8-1s, DE11-3Ws, and ELC13-4s probes

Micro Flow Enhancement (MFE) available

Timer1: On/Off  
Timer2: On/Off  
Pro capture: captures prospective image less than 480s preset table  
Retro capture: captures retrospective image less than 120s preset table  
Dual live: side by side displays tissue image and contrast image  
MFE: On/Off  
MFE period: 0.1s, 0.2s, 0.4s, 0.6s, 0.8s, 1.0s,

MAX  
Destruct: instantly destroy contrast bubbles  
Destruct AP: -30~0dB, 0.3/step  
Destruct time: 500-2000 ms  
Contrast Agent: SonoVue and SonaZoid  
iClear: Off; 7 steps  
Mix: mix contrast image with tissue image  
Mix map: 7 types, available when Mix mode is active  
Persistence: 8 steps  
Dynamic range: same as B mode  
Gray map: 8 types  
Tint map: Off; 8 types  
Supports U/D Flip and L/R Flip  
Rotation: same as B  
CEUS Position: On/Off  
Line density: L/M/H/UH  
FOV: On/Off  
FOV size/position: continuously adjustable  
ExFov: Off, 1-2, 1/step  
Gain: 0-100, 1/step  
iTouch: On/Off, -8~8, 2/step  
Image quality: 3 levels  
Smooth: 0-6, 1/step  
Enhance: On/Off  
Markline: On/Off  
LGC: 8 points

\*The I9 series is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use. Mindray medical systems makes no claims concerning the safety or effectiveness of contrast agents.

### Contrast Imaging QA

Support Time-Intensity Curve analysis  
Table display: display data in table  
Up to 8 ROIs  
Delete all  
Delete current  
Copy ROI  
Fit curve  
Raw curve  
Motion tracking: Reduce the effect of tissue movement  
X scale: 1-5, 1/step

## Performance Specifications

### Imaging (continued)

Auto play:	Stop, X1/10, X1/5, X1/4, X1/3, X1/2, X1, X2, X3
ROI Type:	Trace ROI, Ellipse ROI
Export:	export current data as CSV format file

### STE Imaging (Sound Touch Elastography Imaging)

Available on SC6-1s, C6-2Gs, L9-3s, L20-5s, L14-3Ws, V11-3Hs, DE11-3Ws probes

Display Format:	V1:1, H1:1, Full
Invert:	On/Off
HQ Elasto:	On/Off
E Quality:	Pen, Gen, Res
Elas.Metric:	E, Cs, G
Scale:	30 levels
Opacity:	0-5, 1/step
Map:	3 types
ROI Width/Height:	continuously random adjustable
ROI Center Depth:	continuously adjustable
Depth:	same as B mode
iLayering:	On/Off
Filter:	0, 1
RLB View:	On/Off
M-STB Index:	On/Off
M-STB Sensibility:	0~4, 1/step
Smooth:	0~2, 1/step
Persistence:	0~2, 1/step
RLB Map:	On/Off, RLB, RLB&E, RLB&B&E
Map Position:	0%~100%, 5%/step
E bar:	Mean, Max, Min, SD
E Avg:	Off, 8 levels
Select/Bad:	On/Off
Fixed ROI:	On/Off
Save All:	On/Off
Lesion:	Off, 1-10

### Natural Touch Elastography

Available on L9-3s, L14-3Ws, L20-5s, V11-3Hs, DE11-3Ws probes

Support strain, strain ratio and strain histogram measurement

Unique shell analysis function

Stress compensation technology reduces deeper tissue artifacts, obtain more uniform stress throughout whole field

Stress indicator: supports frame by frame stress indication

Map:	6 types
Smooth:	0-5, 1/step
Opacity:	0-5, 1/step
ROI Width/height:	continuously adjustable
Invert:	On/Off
Display Format:	V1:1, H1:1, Full
Strain mode:	0~1, 1/step
Dynamic Range:	0~5, 1/step
Map Position:	0%~100%, 5%/step
Strain Scale:	0-5, 1/step
E Sensitivity:	0-5, 1/step

### STQ Imaging (Sound Touch Quantification Imaging)

Available on SC6-1s, C6-2Gs, L9-3s, L20-5s, L14-3Ws, V11-3Hs, DE11-3Ws probes

ROI Adjustment:	adjust the ROI fixed size
Elas.Metric:	E, Cs, G
E bar:	Mean, Max, Min, SD
M-STB Index:	On/Off
M-STB Sensibility:	0-4, 1/step
Filter:	0, 1
Smooth:	0-2, 1/step
Persistence:	0-2, 1/step
Map Position:	0~100%, 5%/step
Lesion:	Off, 1~10

The square height of the elasto curve represents the average value of the elasto metric for current frame

Scale:	0-9, 1/step
E Avg:	off, 8 levels
HQElasto:	On/Off
Select/Bad:	On/Off
Fixed ROI:	On/Off
Save All:	On/Off
Lesion:	Off, 1-10

### Smart Pelvic

Enter smart pelvic in 2D or 3D/4D scanning mode  
Set Rest, Valsalva, and Contraction frame  
Measure automatically

### iScanHelper

Tutorial function as a guidance to show basic scanning skill with graphic of probe position, schematic of anatomy and example clinical image  
Support ABD, SMP, URO, OB, GYN applications  
Support broadcasting the scanning skill in multi languages

### DVR

Digital video recorder, a useful tool for education and memory  
Max storage length  
each time: 60 min

### Cine Review and Raw Data Processing

#### Cine Review

Available in all modes  
Frame by frame manual cine loop review or auto playback with variable speed  
Maximum cine memory up to 63575 frames (B storage server) or 210.65s (M storage server) (depends on the mode)  
Maximum 4D cine memory: 5423 volumes (SD8-1s)  
Retrospective storage (1-120s presettable) and prospective storage (1-480s pre-settable)  
Frame compare: displays one cine in dual format and allows frame by frame compare side by side  
Cine compare: compare cines which are saved in same imaging mode  
Jump to first and jump to last: one keystroke go to first or last frame in the cine

### Raw data processing

B-mode:  
TGC  
Gain  
Dynamic range  
Gray map  
Tint map  
iClear  
L/R Flip  
U/D Flip  
Rotation  
iTouch  
LGC  
Dual live  
Auto Merge  
H Scale  
Echo Boost  
B/iNeedle  
Smooth  
Zoom  
Ref Lines  
Dehaze  
V1:1  
ExtImage  
Edge Enhance  
M-mode:  
Gain  
Speed  
Dynamic Range  
Gray Map  
Tint Map  
Display format  
Color:  
Gain  
Baseline  
Smooth  
Color map  
Priority  
Dual Live  
Invert  
Velocity tag  
Glazing flow

#### PW:

Gain  
Baseline  
Volume  
Angle  
Speed  
Dynamic range  
Gray map  
Tint Map  
Display format  
Invert  
WF  
T/F Res

## Performance Specifications

### Report\*

#### Smart OB™

Auto measurement for OB, a special tool for easy OB scan, and greatly reduce time and increase productivity  
Support BPD, HC, OFD, FL, AC  
Better get GA before start auto AC  
Measurement result can be modified by user

#### Smart NT™

NT auto measurement  
Auto detection of NT inside ROI

#### Smart Trace

Measures the lengths of major axis and minor axis, area and circumference of a closed region on the image semi-automatically

#### Report

Specific report template by application  
Editable value in report  
Images selectable  
Anatomy information for vascular and OB report  
Editing through iReport  
User-defined report template  
Selecting report modules  
Adding/removing measurement items from the report  
Changing report layout  
Load/save comment  
Viewing history reports  
Preview and printing reports  
Able to Export as PDF/RTF file  
V-Mapping  
Add anatomical graphics for illustration  
Mini report  
Quickly displaying Mini report in the thumbnail area of the main screen  
Including both general measurement and application measurement results  
Support deleting measurement results

#### iWorks

Auto workflow protocol  
Templates are user configurable  
Functions: pause, stop, replace, repeat, skip, insert single step, return and continue, steps in thumbnail, iNSert™ another template  
iWorks setup mode: B; B/B (Dual Live); Dual B/B; Color; B/Color (Dual Live); Power; B/Power (Dual Live); B + PW; Color + PW; Power + PW; B + CW; Color + CW; B+M; B+TVI; TVI+TVD; iScape.  
iWorks setup annotation: support up to 2 annotations, location and font size are configurable.

iWorks setup bodymark: select existing library, and transducer indicator is pre-settable  
iWorks setup measurement: select existing measurement library  
Template import and export are available  
Support create user-defined iWorks protocol

#### UltraView™

Components:  
DICOM Basic  
DICOM Query/Retrieve  
DICOM OB/GYN SR  
DICOM Cardiac SR  
DICOM Vascular SR  
DICOM Breast SR  
DICOM Urology SR  
DICOM Pediatric SR  
DICOM Small Parts SR  
DICOM Abdomen SR  
TDI QA  
Contrast Imaging QA  
Tissue Tracking QA  
Stress Echo  
SCV (Slice Contrast View)  
Niche  
iLive  
iPage+  
IVF  
Ultrasound Fusion Imaging  
Auto EF  
Smart Planes CNS  
PC-based off-line software

\*Not all measurements are listed in this part; For more detailed information please refer to User Manual

#### Exam Storage and Management

##### Exam Storage

1TB hard drive  
128G SSD (Solid State Drive)  
Direct digital storage of single frame and cine 2D, color and Doppler.

##### Exam Management

iStation™ workstation dedicated for patient exam management  
Patient exam query/retrieve  
Support review of current and past exam  
New exam, Activate exam, Continue exam functions, End exam are available  
Support measurements and calculations on archived exam and images  
Exam images in BMP/JPG/TIFF/DCM/AVI/MP4 format Support backup/send to USB devices, DVD-RW, CD-R, DVD+R, DVD-R, DVD+RW media

### Connectivity

#### Ethernet Network Connection

Cable connection  
Wireless connection: built-in wireless adapter

#### DICOM 3.0

DICOM basic  
Verify (SCU, SCP)  
Print  
Store  
Storage Commitment  
Media Exchange  
DICOM Worklist  
DICOM Query/Retrieve  
DICOM Modality Performed Procedure Step  
MPPS  
DICOM OB/GYN structure report  
DICOM Cardiac structure report  
DICOM Vascular structure report  
DICOM Breast Report  
DICOM Abdominal structure report  
DICOM Small Parts structure report

#### iStorage (included in UltraAssist)

Direct network storage tool between ultrasound system and personal computer

#### MedSight

An interactive app that lets you transfer clinical images straight from Mindray Ultrasound system to a smart device, such as mobile phone or tablet PC  
Needs to be installed on mobile terminal  
Transfer images or clips from system to mobile terminal through Wi-Fi  
Support both iOS (7.0 and above) and Android (4.0 and above) system  
For iOS powered smart device: DICOM is mandatory  
For Android powered smart device: DICOM not necessary

#### MedTouch

Connect Ultrasound machine to smart devices based on Android and iOS system, such as tablet PC or mobile phone. Remote control of Ultrasound machine, review of patient information, and tutorial software iScanHelper study on smart devices  
Support Android and iOS powered smart devices  
Android 4.0 and above  
iOS 7.0 and above  
DICOM not necessary

#### Transducers

##### Curved array

SC6-1s  
Application: Obstetrics, Gynecology, Abdomen, Small Parts, Musculoskeletal, Vascular, Urology, Nerve  
Bandwidth: 1.2-6.0 MHz

## Performance Specifications

### Transducers (continued)

Number of Elements:	192
FOV (max):	60°
Extended FOV:	72°
Convex Radius:	60 mm
Depth:	4-40 cm
Physical Footprint:	65.1 mm × 16.4 mm
Footprint:	64.9 mm × 16.2 mm
B-mode Frequencies:	1.2~3.8, 1.7~5.2, 2.0~6.0 MHz
Harmonic Frequencies:	4.0, 5.0, 6.0 MHz
Color Frequencies:	2.0, 2.5, 3.0, 3.3 (HR Flow) MHz
PW Frequencies:	2.0, 2.5, 3.0 MHz
Biopsy Guide:	NGB-022, multi angle, reusable; C11-3s
Application:	Abdomen, Vascular, Cardiac, Small Parts, Pediatric, Cephalic
Bandwidth:	2.6-12.8 MHz
Number of Elements:	128
FOV (max):	101°
Extended FOV:	113°
Convex Radius:	15 mm
Depth:	1.5-35 cm
Physical Footprint:	32.8 mm × 25 mm
Footprint:	27.4 mm × 8.4 mm
B-mode Frequencies:	2.6~6.5, 3.2~7.9, 4.7~12.8 MHz
Harmonic Frequencies:	6.0, 7.0, 8.0 MHz
Color Frequencies:	4.4, 5.0, 5.7, 5.0 (HR Flow) MHz
PW Frequencies:	4.4, 5.0, 5.7 MHz
Biopsy Guide:	NGB-018, multi angle, reusable
<b>C6-2Gs</b>	
Application:	Obstetrics, Gynecology,
Bandwidth:	1.2-6.0 MHz
Number of Elements:	128
FOV (max):	94°
Extended FOV:	106°
Convex Radius:	20 mm
Depth:	4-40 cm
Physical Footprint:	37.6 mm × 19 mm
Footprint:	31.5 mm × 11.2 mm
B-mode Frequencies:	1.2~3.8, 1.7~5.2, 2.0~6.0 MHz
Harmonic Frequencies:	3.2, 4.0, 5.0 MHz
Color Frequencies:	2.0, 2.5, 3.0, 3.5 (HR Flow) MHz
PW Frequencies:	2.0, 2.5, 3.0 MHz
Biopsy Guide:	NGB-024, multi angle, reusable;
<b>V11-3Hs</b>	
Application:	Obstetrics, Gynecology
Bandwidth:	3.0-11.0 MHz
Number of	

Elements:	192
FOV (max):	170°
Extended FOV:	210°
Convex Radius:	11 mm
Depth:	1.5-28 cm
Physical Footprint:	24.9 mm × 21.8 mm
Footprint:	24 mm × 9 mm
B-mode Frequencies:	3.0~7.0, 4.0~9.0, 5.0~11.0 MHz
Harmonic Frequencies:	8.0, 9.0, 10.0 MHz
Color Frequencies:	4.4, 5.0, 5.7, 5.5 (HR Flow) MHz
PW Frequencies:	4.5, 5.0, 5.5 MHz
Biopsy Guide:	NGB-025, single angle, reusable

### SC8-2s

Application:	Obstetrics, Gynecology
Bandwidth:	1.8-8.2 MHz
Number of Elements:	192
FOV (max):	76°
Extended FOV:	88°
Convex Radius:	40 mm
Depth:	4-40 cm
Physical Footprint:	26.3 mm × 66.9 mm
Footprint:	15 mm × 52 mm
B-mode Frequencies:	1.8~5.4, 2.3~6.8, 2.8~8.2 MHz
Harmonic Frequencies:	4.0, 5.5, 6.0 MHz
Color Frequencies:	3.0, 3.5, 4.0, 3.5 (HR Flow) MHz
PW Frequencies:	3.0, 3.5, 3.8 MHz
Biopsy Guide:	NGB-029, multi angle, reusable

### Volume curved array

<b>SD8-1s</b>	
Application:	Obstetrics, Gynecology
Bandwidth:	1.8-8.2MHz
Number of Elements:	192
FOV (max):	66°
Extended FOV:	91°
Volume Sweep Angle (max):	85°
Convex Radius:	45 mm
Depth:	4-40 cm
Physical Footprint:	75.7 mm × 52.6 mm
B-mode Frequencies:	1.8-5.4, 2.3-6.8, 2.8-8.2 MHz
Harmonic Frequencies:	4.0, 5.0, 5.5, 6.0 MHz
Color Frequencies:	3.0, 3.5, 4.0, 3.5 (HR Flow) MHz
PW Frequencies:	3.0, 3.5, 3.8 MHz
Biopsy Guide:	NGB-039, multi angle, reusable
<b>DE11-3Ws</b>	
Application:	Obstetrics, Gynecology
Bandwidth:	2.0-9.0 MHz
Number of Elements:	192
FOV (max):	162°
Extended FOV:	187°
Volume Sweep	

Angle (max):	120°
Convex Radius:	10 mm
Depth:	4-40 cm
Physical Footprint:	24 mm x 24 mm
B-mode Frequencies:	2.0~6.0, 2.8~8.2, 3.0~9.0 MHz
Harmonic Frequencies:	4.0, 5.0, 6.0 MHz
Color Frequencies:	4.4, 5.0, 5.7, 5.0 (HR Flow) MHz
PW Frequencies:	4.4, 5.0, 5.7 MHz
Biopsy Guide:	NGB-047, single angle, reusable

### L14-3Ws

Application:	Small Parts, Musculoskeletal, Vascular, Abdomen, Pediatric, Thoracic/Pleural
Bandwidth:	3.0-14.0 MHz
Number of Elements:	256
Field of View (max):	50.8 mm
Extended FOV:	20°
Steered Angle:	B: 0, +/-6°, +/-12°; C/PW: -30°-30°
Depth:	1.5-35 cm
Physical Footprint:	66.8 mm × 25.5 mm
Footprint:	55.5 mm × 8.2 mm
B-mode Frequencies:	3.0~9.0, 5.0~12.0, 6.0~14.0 MHz
Harmonic Frequencies:	10.0, 11.0, 12.0, 13.0 MHz
Color Frequencies:	5.0, 6.2, 7.2, 8.3(HR flow) MHz
PW Frequencies:	5.0, 6.2, 7.2 MHz
Biopsy Guide:	NGB-054, multi angle/depth, reusable

### Peripheral Devices and Accessories (Option)

#### Black/white video printer

Digital	MITSUBISHI P95DW-N
Analog	SONY UP-X898MD

#### Color digital printer

SONY UP-D25MD
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#### Graph/text printer

HP OFFICEJET PRO 8100
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#### Gel warmer

Support gel warming with 3 angle position:	15, 55, 90 degrees
Easily be disassembled off system for cleaning	
Temperature with 4 levels:	off/34° C/37° C/40° C, with deviation of ±1° C
Light indicator for temperature protecting	
Dimension:	82(D)*78(W)*119(H) mm
Weight:	approx. 240g (net)



## Performance Specifications

### Peripheral Devices and Accessories (continued)

Continuous operation time: >12h

#### Footswitch

USB port: FS-81-SP-2 (single pedal), 971-SWNOM (2/3-pedal)

Support User-definable functions (Freeze, Save, Print)

#### Barcode reader

SYMBOL LS2208 (1D)

SYMBOL DS4308 (2D)

#### Built-in Wi-Fi 5 Wireless adapter

Encryption: WPA, WPA2

Max transfer speed: 300Mbps

Protocols: IEEE 802.11 ac/a/b/g/n

Frequency: 2.4G/5G

#### Built-in Battery

Replaceable and rechargeable lithium battery

Full battery lasts for more than 24h in standby mode

Battery capacity indicators without powering on the system

Battery fully-recharged time: less than 6h

Continuous scanning time: more than 120 mins for 2H battery

#### Probe adapter

PCM-ES01: transforming E socket to S socket, only for SC6-1E, SD8-1E, P7-3TE, and SP5-1E

PCM-US01: transforming U socket to S socket, only for P7-3TU and SP5-1U

### System Inputs and Outputs

#### Audio input/output

Microphone/Audio: 1 port

#### Video output

S-Video out: 1 port, PAL/NTSC

HDMI: 1 Port

VGA out: 1 port

#### Physio input

Support ECG/PCG signal

ECG: 1 port

PCG: 1 port

#### Other input/output

USB: 6 ports (5 USB 3.0 and 1 Type-C)

Ethernet: 1 port

### Safety and Conformance

#### Quality Standards

ISO 9001

ISO 13485

#### Design standards

EN 60601-1 and IEC 60601-1

EN 60601-1-2 and IEC 60601-1-2

EN 60601-1-6 and IEC 60601-1-6

EN 60601-2-37 and IEC 60601-2-37

EN 62304 and IEC 62304

EN 62366 and IEC 62366

EN ISO 17664 and ISO 17664

#### NOTICE:

Not all features or specifications described in this document may be available in all transducers and/or modes. Mindray reserves the right to make changes in specifications and features shown herein, or discontinue the product at any time without notice or obligation.

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