



# A new era in premium cardiovascular ultrasound

Philips EPIQ 5 ultrasound system

**PHILIPS**

# The new challenges in global healthcare

Unprecedented advances in premium ultrasound performance can help address the strains on overburdened hospitals and healthcare systems, which are continually being challenged to provide a higher quality of care cost-effectively. The goal is quick and accurate diagnosis the first time and in less time. Premium ultrasound today demands improved clinical information from each scan, faster and more consistent exams that are easier to perform, and a higher level of confidence, even for technically difficult patients.



## Key trends in global ultrasound

- A continued search for affordable healthcare solutions in order to deliver more for less with high-quality patient care
- Echocardiography is the imaging mode of choice and exam volumes continue to increase every year
- With echocardiography gaining prominence as a point-of-care tool (such as in the emergency department), increasing numbers of patients are being referred to cardiologists for further investigation



## Introducing a new era in premium cardiovascular ultrasound

It's our most powerful architecture ever applied to ultrasound imaging – touching all aspects of acoustic acquisition and processing, allowing you to truly experience ultrasound's evolution to a more definitive modality.



# Performance

More confidence in your diagnosis  
even for your most difficult cases

EPIQ 5 is the new direction for premium ultrasound, featuring an uncompromised level of clinical performance to meet the challenges of today's most demanding practices.



## **Our most powerful architecture ever applied to ultrasound imaging**

This performance touches all aspects of acoustic acquisition and processing, allowing you to truly experience the evolution to a more definitive modality.

## **Philips nSIGHT Imaging is a totally new approach**

The Philips proprietary nSIGHT Imaging architecture introduces a totally new approach to forming ultrasound images without compromise. Unlike conventional systems that form the image line by line, nSIGHT creates images with optimal resolution down to the pixel level.

## **Extraordinary architecture**

Proprietary nSIGHT Imaging incorporates the use of a new precision beamformer along with powerful massive parallel processing. This extraordinary architecture captures an enormous amount of acoustic data and then reconstructs in real time optimally focused beams, creating precise resolution for every pixel in the image.

# Breaking old rules. Creating new realities.

nSIGHT Imaging breaks the rules of conventional ultrasound to achieve new levels of clinical performance.

## Old rule 1

You must choose between frame rate and image quality

Conventional  
technology

nSIGHT Imaging

nSIGHT more than doubles the frame rate\*

For the first time you can experience both highly detailed ultrasound images while maintaining temporal resolution and frame rate through virtually perfect beams with fewer transmit operations, breaking the traditional compromise of conventional architectures.

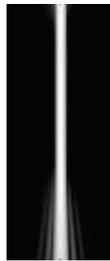
## Old rule 2

You must critically place a focal zone to achieve the greatest image clarity



Conventional  
technology

Best resolution  
limited to  
transmit focal  
zone area



nSIGHT  
Imaging

Effective  
reconstructed  
transmit beam  
uniformity

Now you can experience superb tissue uniformity all the way up to the skin line without the compromise of conventional transmit focus limitations through dynamic calculation and reconstruction of optimal transmit and receive focusing continually at all depths down to the pixel level.

## Old rule 3

You can't escape penetration limitations and sensitivity to weak tissue signals



nSIGHT Imaging



S5-1 PureWave curved array

Superb penetration and resolution  
on adult patients

Visualize extraordinary levels of detail and contrast resolution with exceptional penetration at higher frequencies even on difficult patients through ultra-wide dynamic range and unique beam reconstruction that reinforces exceptional tissue information at greater depths with less noise.

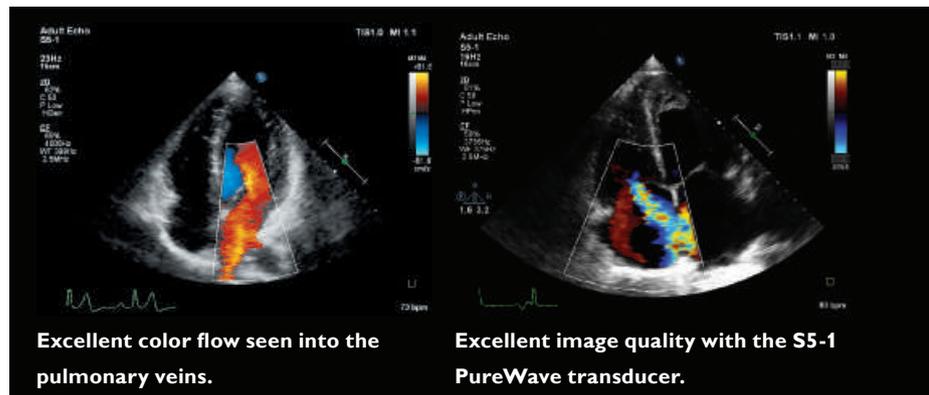
## Image quality: the numbers tell the story

Comparing EPIQ 5 to conventional premium systems shows breakthrough advances in imaging performance:\*\*

- Up to **9%** increase in penetration (penetration = ability to scan at depths and maintain resolution in order to complete the study)\*
- Up to **46%** increase in lateral resolution as well as 10% in axial while maintaining existing frame rate (ability to maintain resolution at high frame rates)\*\*

\* Dependant upon transducer, application, and TSI.

\*\* Quantitative engineering study comparing Philips iE33 ultrasound system with EPIQ 5.



Excellent color flow seen into the pulmonary veins.

Excellent image quality with the S5-1 PureWave transducer.

# Maximize clinical capabilities

**n**SIGHT Imaging strengthens the power of PureWave to image technically difficult patients. PureWave crystal technology represents the biggest breakthrough in piezoelectric transducer material in 40 years. The pure, uniform crystals of PureWave are 85% more efficient than conventional piezoelectric material, resulting in exceptional performance. This technology allows for improved penetration in difficult patients, with a single transducer for excellent detailed resolution.



Adult Echo  
S5-1  
47Hz  
17cm

TISO.3 MI 1.3

70%  
C 50  
P Low  
HPan



S5-1

OB Fetal Echo  
C5-1  
80Hz  
31  
Z 1.1  
70%  
C 50  
P Low  
HRes



RIGHT VENTRICULAR OUTFLOW TRACK

C5-1

OB Fetal Echo  
C9-2  
26Hz  
Z 1.2  
82%  
C 50  
P Low  
HGEn  
CPA  
59%  
1500Hz  
WPF 60Hz  
3.8MHz



FETAL HEART / DUCTAL ARCH

C9-2

Superior performance from all PureWave transducers including X7-2t, C5-1 and C9-2.

PureWave offers new answers for imaging technically difficult patients in a wider range of applications on a cardiology platform, such as the PureWave S5-1, C5-1, and the new PureWave C9-2 for difficult-to-image abdominal and fetal echo patients.



Leading-edge xMATRIX transducers for cardiology also include X7-2t for 2D TEE applications.

# Designed to reinvent the user experience



Place EPIQ 5 in sleep mode, move it, and boot up in seconds.

EPIQ 5 has completely reinvented the premium ultrasound user experience. Ease of use, workflow, ergonomics, portability... we've revolutionized how you interact with an ultrasound system from every standpoint, and kept it beautifully intuitive.

More than 80% of sonographers experience work-related pain, and more than 20% of these suffer a career-ending injury.<sup>1</sup> With EPIQ 5 a new tablet-like interface results in dramatic reduction in reach and button pushes, with 40% to 80% less reach and 15% fewer steps.\*

## Advanced workflow

The design of the platform features "walk-up usability" meaning that users can perform an exam with minimal training. The system offers the automation to drive efficiency throughout exams with features such as Real Time iSCAN (AutoSCAN), which automatically optimizes gain and TGC continuously to provide optimal images are achieved in 2D, 3D, or 4D.

## Scanning comfort

Multiple degrees of articulation for both the control panel and 21.5-inch LCD monitor, with 720° of freedom, allows for ergonomic alignment for scanning comfort whether sitting or standing.



EPIQ 5 features integrated efficiency tools and multiple degrees of articulation for scanning comfort.

## Library quiet

EPIQ 5 is almost silent when running. A noise test determined that EPIQ 5 runs at 37-41 dB, which is equivalent to the sound of a library.



1. Society of Diagnostic Medical Sonography, Industry Standards for the Prevention of Musculoskeletal Disorders in Sonography, May 2003.

\*Workflow study comparing Philips iE33 ultrasound system with EPIQ 5.



### Amazingly portable

At just 230 lbs. (104.3 kg), EPIQ 5 is lightest in its class and 40% lighter than the heaviest competitive premium system. Easily transport EPIQ 5 on both carpet and tile floors. Place it in sleep mode, move it, and boot up in seconds. The monitor folds down to reduce overall system height for transport, and the integrated cable hooks and catch tray are ideal for portable studies. Wireless DICOM further aids workflow.\*

### Efficiency is built in

Integrated efficiency tools address the expanding demand for greater throughput and exam consistency.

### SmartExam

SmartExam decreases exam time by 30-50%, keystrokes by as many as 300/exam, and results in a higher level of consistency among users. It is fast and easy to customize, providing consistent and accurate annotation, automatic mode switching, and missed view alerts to streamline exams. The result is more time to focus on your patients, increased confidence in complete studies, less focus on requirements, less repetitive motion, less stress, and enhanced schedule maintenance and department efficiencies.

### Auto Doppler for vascular imaging

Auto Doppler takes time-consuming color box positioning and sample volume placement from ten steps to three steps and reduces the number of repetitive button pushes by an average of 67.9%.

### Active native data

Active native data allows for post-processing of many exam parameters.

### Set-up Wizard

Set-up Wizard allows users to step up to the system, easily establish user configurations, and get running quickly.

Large 21.5 inch (54.6 cm) wide screen for easy viewing in virtually any environment.



Four transducer ports decrease the amount of plug/unplugging required during a day of scanning.

### EPIQ 5 makes it easy to be green

EPIQ 5 is one of the greenest systems we have ever designed. It consumes 25% less power than our existing premium ultrasound.

\*Check for availability in your geography

# Intelligence

## turning images into answers

### Anatomical Intelligence is the heart of EPIQ 5

More data, is available than ever before, requiring tools for you to simplify and quicken the process of acquiring reproducible data and turning it into valuable information for your patients.

At the heart of the powerful EPIQ 5 architecture is our Philips exclusive Anatomical Intelligence Ultrasound (AIUS), designed to elevate the ultrasound system from a passive to an actively adaptive device. With automatic anatomy recognition, protocols for automatic functionality, and proven quantification, exams are easier to perform, more reproducible, and deliver new levels of clinical information.

### Using inbuilt models to drive exam simplification

With AIUS, libraries of organ model data gathered across many modalities create a platform where information from a single exam can be tailored to a patient-specific organ model or Region of Interest that yields useful information in less time, with less training, and with less complexity.

Sophisticated modeling adapts certain atlas shapes to a patient's individual organ using feature data collected over hundreds of patients with various conditions. AIUS ranges from automating repetitive steps to full-blown computer-driven analysis with minimal user interaction – all using anatomic intelligence and all providing the results you need. In fact, many of our tools come with ZeroClick technology,\* which means that, once an image is loaded, the tool does it all for you.

## Q-App quantification applications

EPIQ 5 offers a wide variety of sophisticated Q-Apps to quantify ultrasound image information.

Q-App	Clinical application	Benefit
IMT (for vascular)	Automatic carotid intima media thickness measurement	Fast and easy access to IMT data
ROI	Echo contrast and color images	Extract acoustic measurements from images
Strain Quantification (SQ)	Measures the myocardial velocity from color tissue Doppler	Derive displacement strain and strain rate
CMQ Stress	Speckle quantification of stress echo images	Decrease the subjectivity of stress echo analysis
AIUS Q-Apps	Clinical application	Benefit
Automated 2D Cardiac Quantification <sup>A.I.</sup> (a2DQ <sup>A.I.</sup> )	AutoEF for 2D images	Fast and reproducible biplane EF
Automated Cardiac Motion Quantification <sup>A.I.</sup> (aCMQ <sup>A.I.</sup> )	Speckle quantification of global and regional strain data	Provides both EF and speckle data simultaneously to assist with LV function assessment

\*Edit option

EPIQ 5 is our most intelligent premium ultrasound system ever, offering a complete set of easy-to-use quantitative tools to turn reproducible data into information to guide treatment.

### Automation

#### Automated 2D Cardiac Quantification<sup>A.I.</sup> (a2DQ<sup>A.I.</sup>) with ZeroClick technology

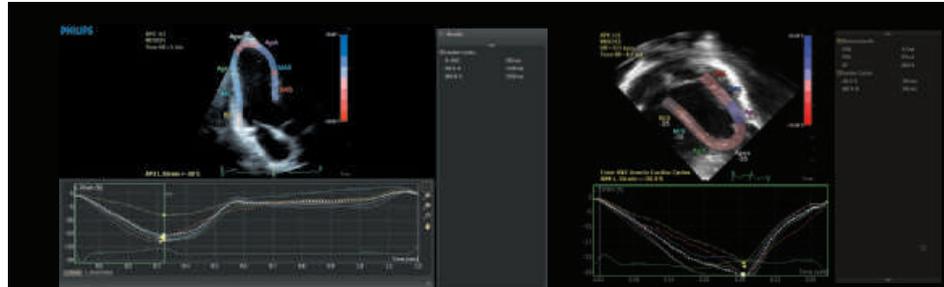
The ideal tool of every echo lab, Automated 2D Cardiac Quantification<sup>A.I.</sup> (a2DQ<sup>A.I.</sup>) with ZeroClick technology uses AIUS for an Auto-ROI to drive the Q-App and provide rapid access to proven 2D EF and volumes. AutoEF is available during the study and so fits in with an everyday echo protocol. Applicable to echo images acquired using S5-1, S8-3, S12-4, and X7-2t.



**a2DQ<sup>A.I.</sup> with ZeroClick for fast, reproducible EF on all your patients.**

#### Automated Cardiac Motion Quantification<sup>A.I.</sup> (aCMQ<sup>A.I.</sup>) with ZeroClick technology for adult echo

The ZeroClick technology of the Automated Cardiac Motion Quantification<sup>A.I.</sup> (aCMQ<sup>A.I.</sup>) uses speckle mechanics to provide reproducible 2D Global Longitudinal Strain (GLS) speckle measurements. An accurate EF is also calculated by using the Auto-ROI that drives the automation within the aCMQ<sup>A.I.</sup> Q-App. Applicable to echo images acquired using S5-1, S8-3, S12-4, and X7-2t.



**aCMQ<sup>A.I.</sup> with ZeroClick technology provides both EF and GLS from the same 2D images.**

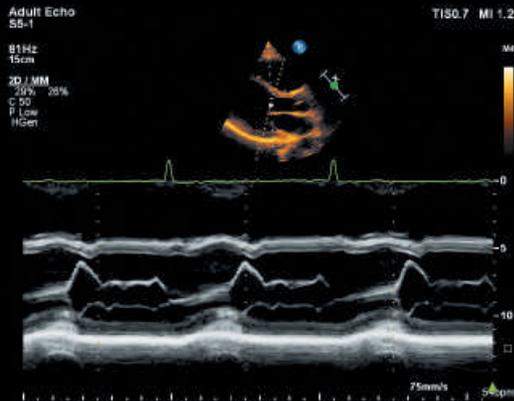
## Access to multimodality images

Use the EPIQ 5 multimodality query retrieve to view DICOM images such as CT, NM, MRI, iXR, cardiac X-ray, and ultrasound. Easily compare past and current studies without the use of an external reading station and even review these multimodality images while live imaging.

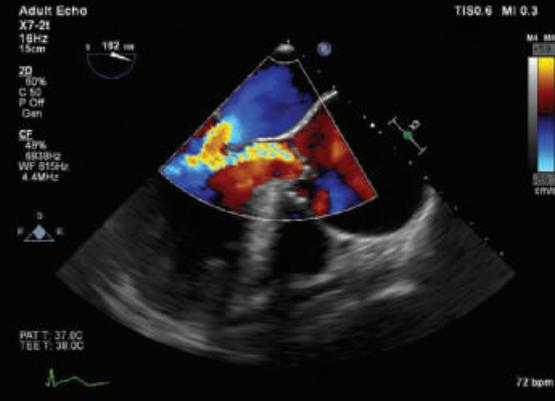


Multimodality Query Retrieve allows side-by-side comparison on any DICOM image.

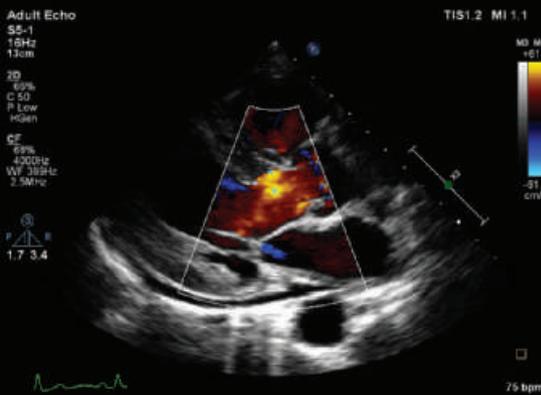
# New levels of clinical information



Anatomical M-mode of PLAX



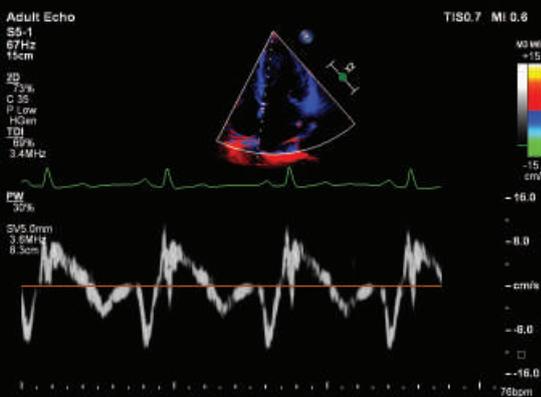
Mitral regurgitation



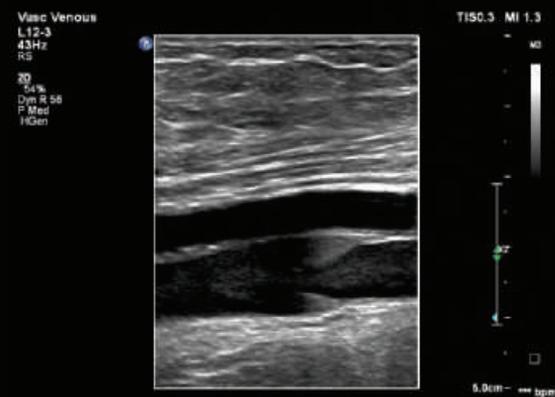
Mitral regurgitation



Epi-aortic



Tissue Doppler PW



Vascular



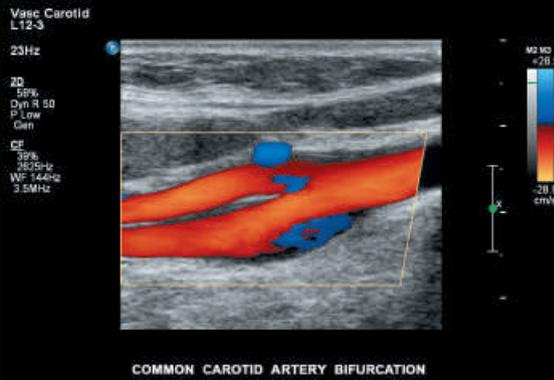
FETAL AORTIC ARCH

Fetal echo



FOUR CHAMBER HEART

Fetal echo



COMMON CAROTID ARTERY BIFURCATION

Vascular



POSTERIOR TIBIAL VEINS / ARTERY

Vascular

# Advanced support services are proactive



We understand your challenges: uncertain economic times, changing healthcare landscapes, and the impact of healthcare reform. We know that efficient workflows and system uptime are critical success factors in running an effective healthcare business.

Philips is committed to offering solutions to provide you with world-class services that move from reactive to proactive and with predictive service models that provide high system availability and enhanced workflow to help you deliver high-quality patient care.

## Remote services mean we're closer than ever\*



### Remote desktop

Spend less time on the phone with a Philips "Virtual Visit" with remote system interaction for fast technical and clinical troubleshooting and guided scanning options.

### iSSL technology

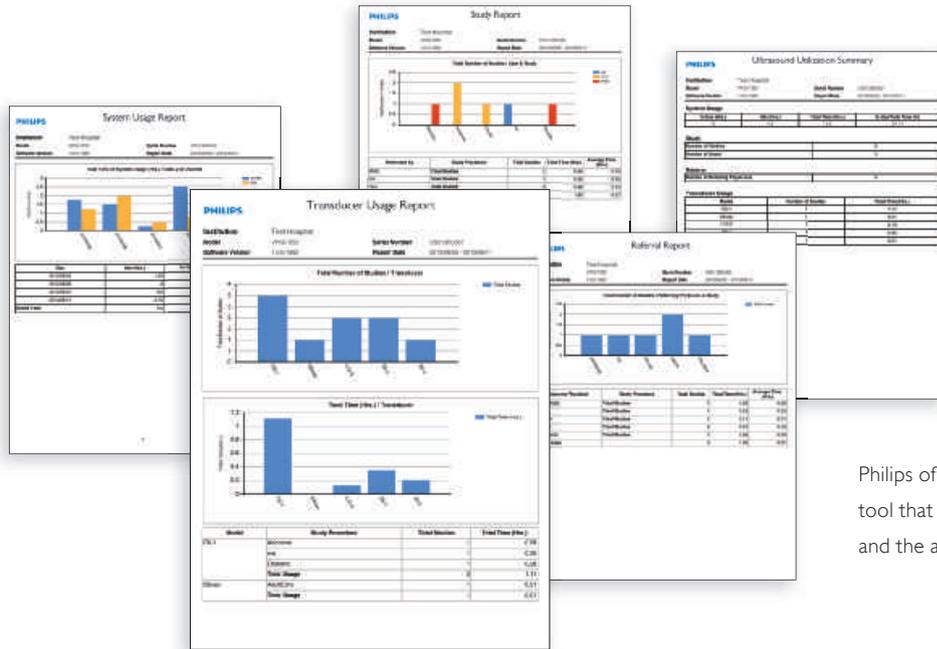
This industry-standard protocol meets global privacy standards and provides a safe and secure connection to the Philips remote services network using your existing Internet access point.

### Online support request

Enter a support request directly from your EPIQ system for a fast, convenient communication mechanism that reduces workflow interruption and keeps you at the system and focused on your patient.

The remote desktop allows Philips service engineers to gain a live view of your system's console for remote operation, real-time clinical troubleshooting, and issue resolution.

# and predictive



Philips offers the only ultrasound utilization tool that provides individual transducer usage and the ability to sort by exam type.

## Utilization reports

Data intelligence tools that can help you make informed decisions to improve workflow, deliver quality patient care, and decrease the total cost of ownership. This is the only ultrasound utilization tool that provides individual transducer usage and the ability to sort by exam type.

## Pro-active monitoring

Proactive monitoring allows for the detection and repair of anomalies before they become problems and helps us to better predict potential failures and proactively act on them. Increase system availability, optimize workflow, and promote patient satisfaction by scheduling downtime as opposed to reacting to an unexpected problem.

\*Check for availability in your geography.

## Exceptional serviceability

The system features superior modular design for rapid repair, getting your system up and running quickly.

## Intelligent software architecture

Software is easily optimized, maintained, and restored by the service user without risk to patient data, giving you peace of mind when dealing with software anomalies and confidence that your data is safe.

This software architecture takes patient data privacy to a new level. Patient data is stored on a separate partition and physical location to provide protection and ease of removal, providing you total control of your data.

## Clinical education solutions

Our comprehensive, clinically relevant courses, programs, and learning paths are designed to help you improve operational efficiency and enhance patient care.

**Philips Healthcare**  
is part of **Royal Philips**

How to reach us

[www.philips.com/healthcare](http://www.philips.com/healthcare)  
[healthcare@philips.com](mailto:healthcare@philips.com)

Asia

+49 7031 463 2254

Europe, Middle East, Africa

+49 7031 463 2254

Latin America

+55 11 2125 0744

North America

+1 425 487 7000

800 285 5585 (toll free, US only)

Please visit [www.philips.com/EPIQ](http://www.philips.com/EPIQ)



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