



Xcelera solutions for cardiovascular ultrasound

Philips Xcelera – one solution to manage cardiovascular care

PHILIPS

Xcelera is a robust multimodality cardiology image management, analysis and reporting solution that provides patient centric access to cardiology data and examinations. The system is highly configurable, scalable and customizable with the potential, via optionally available plug-ins, to support cardiovascular X-ray, ultrasound, nuclear medicine, computed tomography, magnetic resonance, and electrophysiology examination types. Furthermore, optional software is available for Xcelera to retrieve electrocardiograms from certain ECG management systems. Xcelera performs the necessary functions for exam storage and review. Xcelera additionally offers various analysis and quantification packages, clinical reporting and archiving features as optional functionality.

Xcelera's cardiovascular ultrasound module is a key component of Philips' cardiovascular information management solution. Designed to streamline workflow, it provides a comprehensive, patient-centric approach to image and information management, is more integrated than ever and offers efficiencies designed specifically for clinicians.

Xcelera offers access to all the tools your echocardiography lab needs to enhance efficiency and patient care – all from a single cardiology workspace.



Main window

Enhanced productivity

Xcelera's echo lab management module improves productivity by offering integrated review, measuring and reporting from a single workspace. The system configures images on the screen exactly as the user specifies. Images can be flagged or captioned for easier communication. Pre-defined customizable finding codes (diagnostic statements) appear on drop-down menus, enabling easy reporting. The enhanced workflow allows clinicians to use customizable reporting macros that provide pre-determined text based on the exam evidence.

Flexible Workspace

Xcelera offers several viewing environments for ultrasound procedures. Both single-display and dual-display configurations are available. In either configuration, you can customize your workspace with or without toolbars, the Work Area and reports. For instance, in a dual-display configuration, you can access 2D and 3D ultrasound quantification applications on one display and review images on the other, or review images on one display and generate the clinical report on the other. Xcelera allows the user to determine and set their own review, quantification and reporting preferences.

Efficient measurements

Configurable measurements and calculations

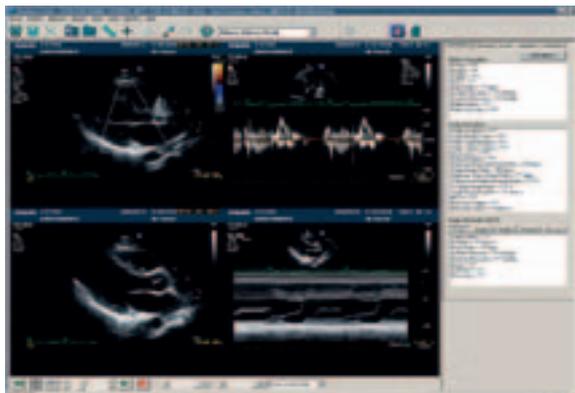
With Xcelera's enhanced measurement configuration tool you can create, edit, and delete measurements and calculations. You can re-label existing measurements and calculations with your lab's standard naming convention and even insert your lab's normal range values. The Xcelera database is automatically updated with this information and the results displayed on the clinical report.

Data integration with advanced 2D and 3D ultrasound quantification, powered by QLAB 7 quantification software with Xcelera and iE33 Vision 2009 enhances reporting efficiency. To assist with incorporating advanced quantification in standard clinical workflow, Xcelera accepts and stores image clips, measurements and calculations from QLAB. Measurement performed within the QLAB application will automatically transfer to the Xcelera

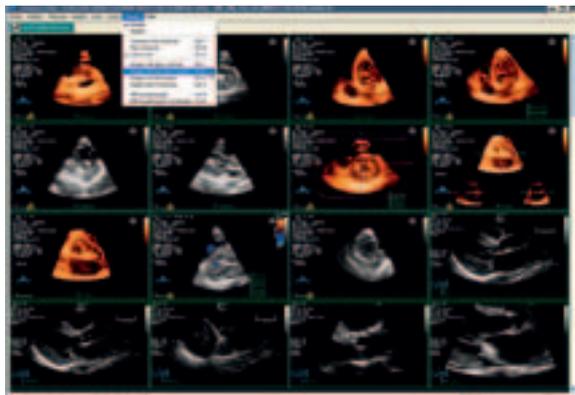
database and can be made available in the Work Area and on the clinical report. This automated transfer of measurements provides you enhanced reporting efficiency.

3D and 2D ultrasound quantification – powered by QLAB*

Advanced Cardiac 3D Quantification (3DQ Advanced plug-in) revolutionizes echocardiography quantification and extends the diagnostic power of Live 3D Echo by providing the first semi-automated, on-cart and off-cart analysis of true Left Ventricular (LV) volumes – using the full 3D



Ultrasound viewer



Ultrasound viewer

* 3D package compatible with exams from Philips iE33, iU22 and SONOS 7500 cardiovascular ultrasound systems. 2D package compatible with exams from Philips iE33, iU22, CX50, HD15, HD11, SONOS 7500 and HDI cardiovascular ultrasound systems.

dataset to generate a real-time 3D endocardial border. The 3D border has higher accuracy with less dependency on LV shape assumptions than conventional methods.

The determination of 3D volume and ejection fraction is inherently more accurate with 3DQ because it takes advantage of the true 3D data set generated by the xMATRIX transducer, avoiding some of the geometric assumptions commonly associated with conventional 2D ejection fractions, such as apical foreshortening.

The key application for 2D Quantification plug-in (2DQ) is fast, reproducible analysis of LV volumes and ejection fractions. The superb 2D image quality provided by PureWave crystal technology allows tracking of blood/tissue interfaces.

Tissue Motion Quantification (TMQ) and Advanced Tissue Motion Quantification (TMQA) provide a new method based on 2D speckle tracking technology for assessing global, regional and local cardiac function at rest and effort.

Strain Quantification (SQ) has proven clinical application used in the evaluation of regional myocardial function, assessment of synchronicity and guidance during bi-ventricular pacing procedures.

Region of Interest (ROI) quantification plug-in increases the consistency and reliability of acoustic measurements while reducing the effort required to successfully carry out ROI analysis. In addition, ROI can minimize the time needed to analyze data from image content.

Intima Media Thickness (IMT) quantification was designed to increase the consistency and reliability of IMT measurements, reduce the effort required to successfully carry out IMT measurements and minimize the time needed to complete an IMT study.

Mitral Valve Quantification**

The Mitral Valve Quantification plug-in (MVQ) adds 2D and 3D quantification of the mitral valve anatomy and associated structures based on data acquired with Philips Live 3D Echo and the X7-2t transesophageal transducer. While Live 3D TEE provides views seen for the first time, MVQ provides quantification data available for the first time for cardiologists, cardiac surgeons, anesthesiologists, and interventionalists. Based on the Live 3D TEE information, the MVQ plug-in provides a clinical decision support tool to enhance diagnostic confidence, surgical planning, communication between clinicians and the patient, and follow-up care.

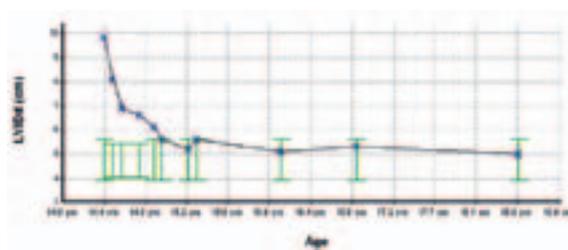
Pediatric Z-scores calculated automatically

By entering height and weight, pediatric Z-scores are automatically calculated and embedded into the clinical report. Deviations are highlighted and the clinical user can choose between normative datasets from various leading pediatric cardiology centers.

** MVQ package compatible with exams from Philips iE33 Cardiovascular Ultrasound systems with Live 3D TEE transducers

Trending measurements and calculations over time

To assist the clinician with the evaluation of treatment or assessment of disease progression, Xcelera displays a graph of all cardiovascular ultrasound measurements and calculations over time. If a Z-score is available, the system displays an overlay of the normal range for that measurement on that date.



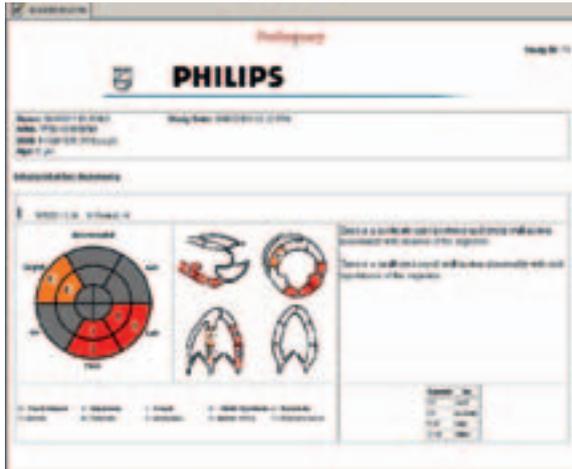
Trending graph

Wall motion scoring

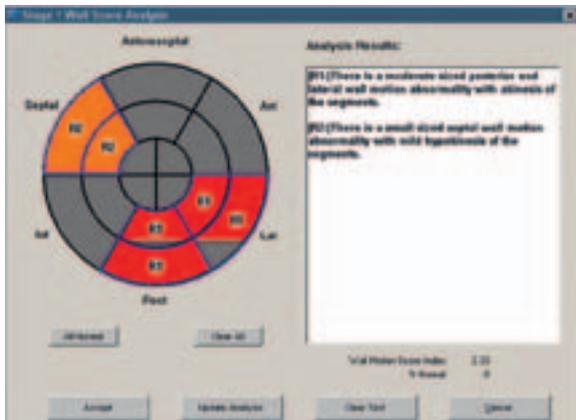
Xcelera now includes wall motion scoring clinical statements that are automatically generated based on previous selections made by clinicians on the wall scoring diagrams. The algorithm that translates wall motion scores to clinical statements will:

- Determine the current wall segments with abnormal scores
- Combine these segments into sets, which are anatomically contiguous
- Generate a report statement for each of these sets which indicates the number of segments in the set, provides the anatomic location of the set and gives the range of scores in the set

Size definitions (# segments involved)	Territory definitions	Abnormality range: (expresses the least to greatest wall for a territory)
1-2 segments = small	Inferior	- Mildest to worst
3-4 segments = moderate	Posterior	- Hypokinesis to akinesis
> 4 segments = large	Lateral	- Akinesis to dyskinesis
	Anterior	- Aneurysm formation
	Septal	
	Apical	



Wall motion scoring report



Wall motion scoring reporting tool

Vascular ultrasound

Viewing, quantification, and reporting for vascular ultrasound are among Xcelera's capabilities. Xcelera accepts vascular DICOM SR measurements from Philips cardiovascular ultrasound systems. User defined measurements can be created directly on the Xcelera. Two carotid reporting profiles are provided.

In addition, Xcelera provides a 'Carotid Smart Chart' for entering user-defined percent stenosis statements based on measurement/calculation values. With use of the appropriate carotid report template, stenosis values are automatically populated in the clinical report.

Support of iE33 pediatric DICOM SR

Xcelera accepts pediatric DICOM SR measurements from the Philips iE33 cardiovascular ultrasound system. Measurements are displayed in the Work Area and stored in the database.

Spell check

Spell check is provided for all manual text entry and comment dialog boxes in the Xcelera ultrasound reporting application.

Third-party compatibility

Xcelera supports DICOM ultrasound studies and DICOM Structured Reporting measurements from selected vendors (refer to Philips whitepaper on DICOM SR). Support of DICOM Structured Reporting provides you with automatic transfer of measurements from an ultrasound system to the Xcelera database and clinical reports (if configured).

Tele-Cardiology

As we continue to enhance Xcelera, our priority is to continuously improve your clinical workflow. Xcelera tele-cardiology solutions provide various options to support the cardiology enterprise, including full system functionality wherever you are, whenever you want, without compromising image fidelity or quantification applications. Access the full range of Xcelera's powerful functionality via a secure VPN connection, or in a remote networked location. The ability to 'push' or 'pull' cardiology exams to multiple locations that you designate gives you greater flexibility on your work routines.

Remote Workflow

- Benefits the cardiologist on the move and improves clinical support for satellite clinics.
- Push batches of exams to a remote location prior to review and analysis. Studies sent to a shared drive at a location can be conveniently accessed by other clinicians at that location.
- Pull exams on demand for convenient access, allowing for remote review, quantification and reporting while away from the cardiology department.
- Copy exams to a laptop or external drive and take them with you to review later.

Remote Access to Results

Xcelera WebForum provides a dedicated application to distribute exam results, including images and finalized clinical reports, across your healthcare enterprise. Whether you need to share information with a referring physician, another cardiologist providing treatment, or just for your own reference, access to images and reports is as close as your Internet connection. Xcelera's remote results access option facilitates the review of reference images and finalized reports from the ICU, the exam room, your office and even your home computer.

Enterprise Integration

Deploying Xcelera as a component of your electronic medical records system or other enterprise application provides patient-centric access to exams for improved workflow and enhanced patient care delivery.*

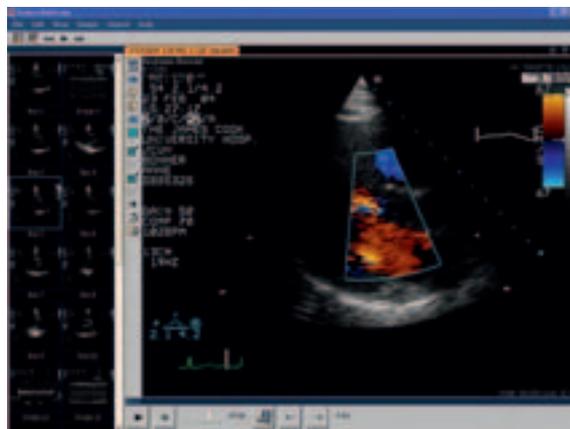
Xcelera – robust, secure and feature-rich platform designed for today and tomorrow

Safeguarding security and performance

Xcelera will support High Availability via a Microsoft® cluster environment to reduce potential system downtime. If one server fails, a secondary fail-over server can perform the functions to maintain operation so the end user can continue to access Xcelera functionality. By maintaining uptime this functionality will provide cost savings.

Clinical roles

Each user only has access to relevant information based upon the roles assigned and can only make edits and additions at the level of permission granted. Activity is recorded in an audit log.



Xcelera WebForum

* network bandwidth speeds need to be taken into consideration

Business tools

In addition to streamlining workflow in the cardiology department, advanced investigation of stored discrete data can be performed on Xcelera's database views with the use of standard data analysis tools.

Xcelera provides the tools necessary to aid compliance with HIPAA regulations.

Value-added services

Philips can assist you in creating a more efficient clinical workflow by offering an extensive range of services to help you implement, integrate and configure your Xcelera solution.

DICOM interoperability

- Easily access third party DICOM archives, leveraging your existing investment in IT solutions.
- Take advantage of expanded DICOM capabilities, such as DICOM Query/Retrieve, manual DICOM export, DICOM Structured Reporting, and DICOM-based archive connectivity.
- Leverage existing IT solutions and take advantage of expanded DICOM capabilities so that you can easily utilize third-party DICOM compliant systems and archives.

Connectivity throughout the enterprise

Xcelera's HIS interfaces for ADT/orders and results reporting can potentially reduce errors, save critical time to treatment and lead to faster billing.

Database and operating system

Xcelera utilizes industry-leading supporting technology: Windows 2003 for the server operating system and SQL 2005 for the database application.

Intuitive user interface

Xcelera's graphical user interface conforms to Philips' user interface standards, minimizing training and enhancing ease of use.

Future-safe investment

With Xcelera you are investing in a proven platform. In fact, nearly every Philips cardiology informatics product introduced since 1996 has a defined upgrade path to the latest most advanced Xcelera functionality, retaining all historical data, including images, reports, and templates.

Xcelera gives you a platform for further expansion, enabling you to review, quantify, and report on a variety of cardiac modalities at the same workspace. You also have the ability to access ECG reports via optional interfaces to Philips TraceMasterVue and GE MUSE ECG management systems.

For more information, contact your local Philips representative.

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