

## GLOBAL INNOVATION BY DESIGN

For over 130 years Toshiba's research and development has improved the health and welfare of people around the world.

Today, Toshiba Medical Systems offers a full range of diagnostic imaging products and is a reliable service partner in more than 110 countries.

In accordance with our **Made for Life™** commitment, we will continue to develop innovations that improve patient care and provide lasting quality for a lifetime of value.

## TOSHIBA - A HISTORY OF LEADERSHIP

- 1875** Founding of Toshiba
- 1915** First X-ray tube
- 1966** First diagnostic ultrasound system
- 1973** First real-time echocardiograph
- 1983** First laptop PC
- 1985** First color Doppler system
- 1989** First helical CT scanner
- 1993** First fully digital ultrasound system
- 1997** First open, superconducting magnet
- 2003** First 64-slice CT scanner
- 2004** F&S Technology of the Year award
- 2006** First HD-DVD player
- 2007** Shipment of the 190,000<sup>th</sup> ultrasound unit



### TOSHIBA MEDICAL SYSTEMS CORPORATION

<http://www.toshibamedicalsystems.com>

©Toshiba Medical Systems Corporation 2007 all rights reserved.

Design and specifications subject to change without notice.

"Made for Life", Artida, Pulse Subtraction

and istyle are trademarks of Toshiba Medical Systems Corporation.

Model number: SSH-880CV MCAUS0172EAA 2008-1 TME/TMSC/D



Toshiba Medical Systems Corporation meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485.



Toshiba Medical Systems Corporation Nasu Works meets the Environmental Management System standard, ISO 14001.

Printed in Japan

# TOSHIBA

Leading Innovation >>>

**ARTIDA**  
powered by SmartCore technology

**ARTIDA**



## Unleashing the power of vision.

Engineered to help you get the information you need to make the right decisions quickly, Artida™ elevates echocardiography to a new level of imaging performance and diagnostic accuracy.

Unprecedented image quality, ultra-fast and straightforward 4D volume navigation and advanced wall motion assessment using Toshiba's proprietary 3D speckle tracking technology are now a reality. These are practical innovations that help you gain greater diagnostic safety and efficiency, and your patients to enjoy greater peace of mind.

Artida's SmartCore engine employs the distributed processing power of more than 80 processor cores interconnected by an extremely fast digital system interface. In fact, the SmartCore engine is so powerful it can process an amount of data equal to more than a fully loaded DVD every single second.

Featuring Toshiba's unique and innovative iStyle™ ergonomics and workflow package, Artida is pioneering new levels of efficiency and convenience in your daily clinical practice. Every aspect of Artida is designed to support you in carrying out your examinations more efficiently and in an ergonomically correct, neutral posture.

A workstation solution gives you full access to your clinical data and diagnostic toolset for convenient review, reporting, analysis wherever and whenever needed. With full DICOM connectivity including embedded raw data functionality and IHE compliance, Artida integrates seamlessly into all networked clinical environments.

# Clearer vistas, faster results.

Evaluating patients in today's demanding clinical environment requires innovative technology allowing diagnosis to happen in less time and with greater confidence. Featuring a broad range of unique, clinically validated imaging functions, Artida expands your clinical utility while improving patient care.



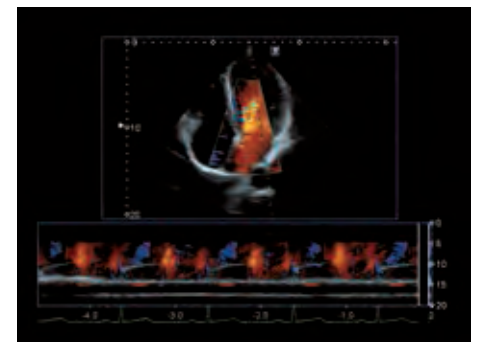
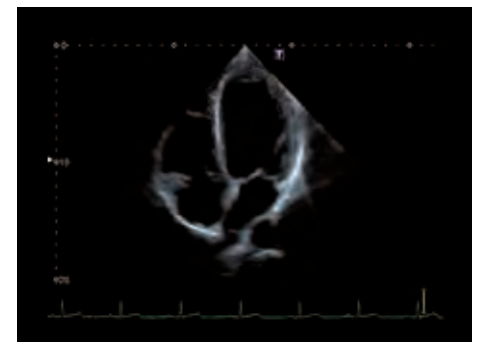
Designed to minimize operator stress and increase efficiency, Toshiba's SmartFocus transducers feature lightweight, ergonomic housings and thin, super-flexible cables.

Artida's MultiCast beamformer uses advanced digital signal processing to control the shape of the ultrasound beam a hundred times more precisely and flexibly than in comparable systems. Notable performance improvements, such as a simultaneous multiple transmit focus or double frame rate in color Doppler mode, help you expedite exams while improving your diagnostic accuracy.

With SmartFocus Toshiba is the first to introduce genuine 4D technology to conventional 2D imaging transducers. A significantly finer and more uniform ultrasonic beam in all three dimensions results in superb image quality from the very near to the far field.

Pulse Subtraction™ Tissue Harmonic Imaging offers superior greyscale image quality by providing enhanced spatial and contrast resolution while simultaneously increasing penetration.

Artida's new Tissue Enhancement Mode delivers ultrasonic images of stunning smoothness and clarity. While it suppresses white noise effectively, the Tissue Enhancement Mode improves image uniformity and endocardial border delineation dramatically, especially in difficult-to-scan patients.





# Do it in your style with iStyle

Featuring Toshiba's unique and innovative iStyle package, Artida brings new levels of efficiency and convenience to your daily clinical practice.



The freely programmable, mode-sensitive color Touch Command Screen enables direct access to all basic and advanced system controls.

Convenient transducer trays on both sides put up to four transducers within easy reach in any scanning position.

Basic and advanced quantification functions can be activated directly on the programmable console.

Concise mode buttons with multi-gain controller enable direct access to all imaging modes.

The central Palm Controller allows easy access to the most important functions with minimal hand movement.

Artida's unique tripartite image layout key enables direct selection of the desired screen layout quickly and with ease.

Pushing the QuickScan button instantaneously optimizes the image quality in 2D and 4D modes.

A retractable alphanumeric keyboard is available to manually enter comments or patient data.



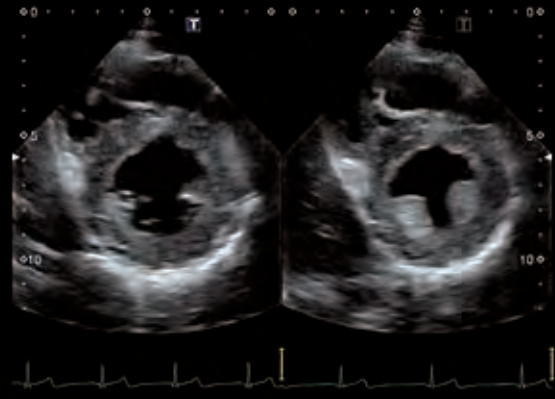
From the highly movable console to the premium LCD screen with articulating arm and convenient handle, Artida is designed to adjust to your clinical needs and personal preferences.

Artida's console elevates, translates and rotates to help you adjust the system quickly to your eye level and posture. Its concise layout and ultra-fast response translate directly into higher productivity and convenience of use.

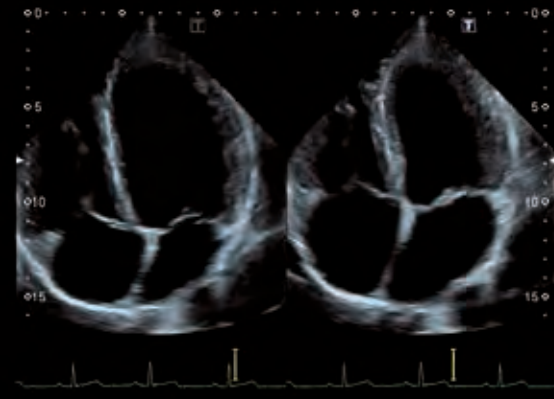
Virtually all buttons on Artida's console and now also on the Touch Command Screen can be reassigned to suit your specific requirements, resulting in better reach, fewer keystrokes and a shorter learning curve.

QuickScan optimizes the image quality in both 2D and 4D imaging modes at the touch of a button to reduce scan time and to improve consistency and quality of exams.

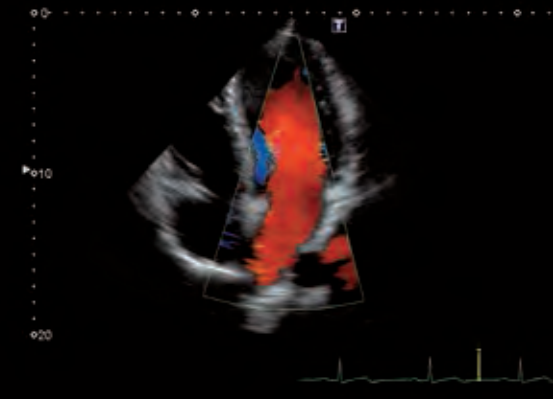




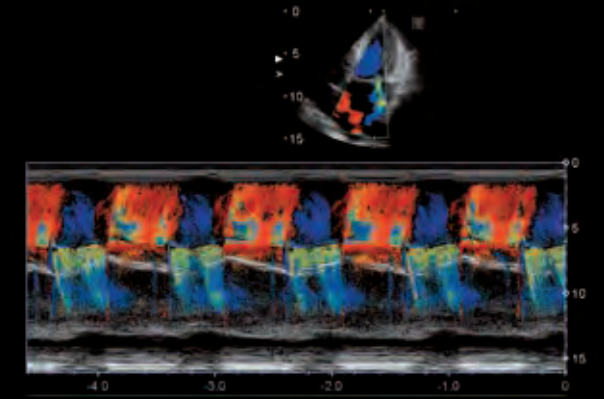
**LV hypertrophy:** Artida's Tissue Enhancement Mode significantly enhances smoothness and clarity of images for a better visual assessment of the heart.



**Dilated left ventricle:** The Tissue Enhancement Mode also improves endocardial border delineation dramatically, especially in difficult-to-scan patients.



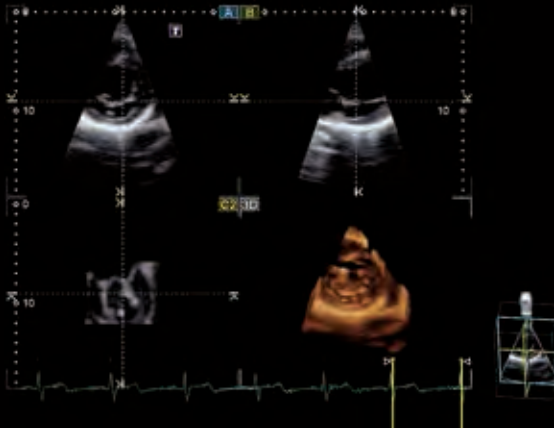
**LV diastolic inflow:** Artida's highly sensitive color Doppler depicts flow up to the portal veins with outstanding spatial resolution and at double frame rate.



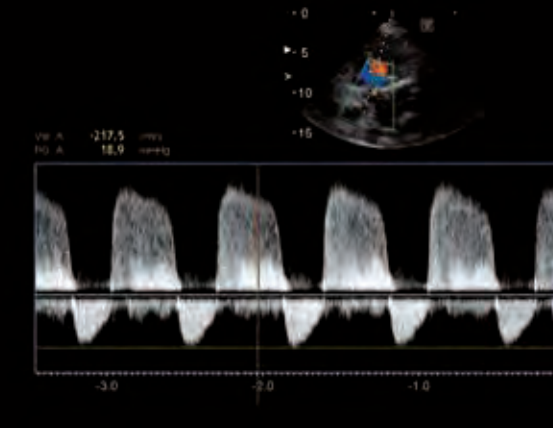
**Mitral regurgitation:** Even the smallest jets can be detected with ease and visualized with high definition in both color Doppler and color M modes.



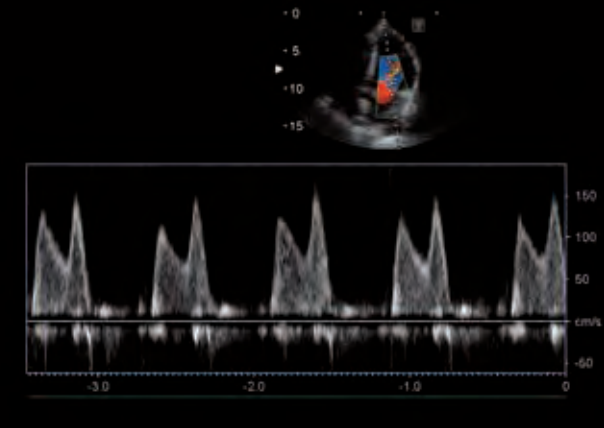
**Normal left ventricle:** Artida's CrossCut function enables you to acquire and display two independent cut planes simultaneously and in real time.



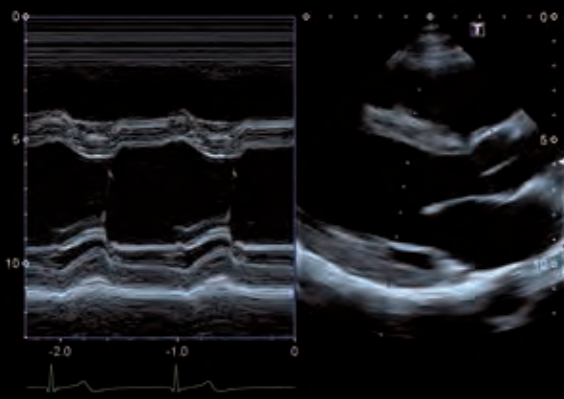
**4D reconstruction of mitral valve:** Combining a 4D rendering of the valve with multiple synchronized MPRs facilitates in-depth assessment of valve morphology.



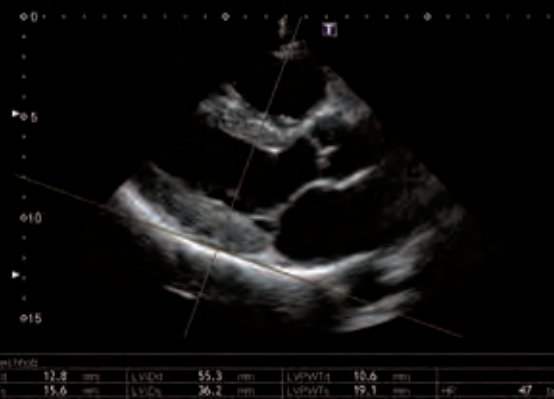
**Aortic insufficiency with mild aortic stenosis:** The easy-to-use measurement toolset produces quick results.



**Mitral flow:** Artida's superior spectral Doppler allows for fast and secure assessment of flow pattern in a wide range of clinical circumstances.

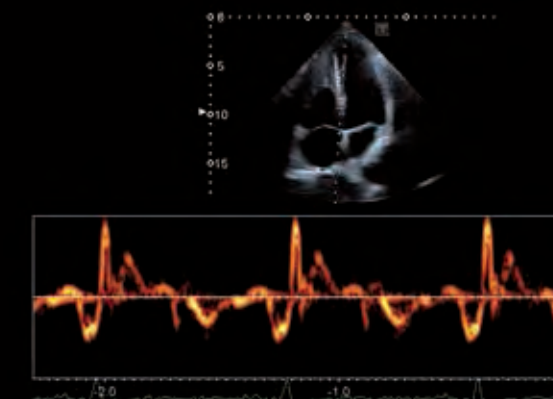


**LV function assessment:** High resolution and fine detail in both 2D and M modes are obtained at the touch of a button with QuickScan automated image optimization.



**Parasternal long axis view:** Off-axis LV measurements can easily be performed in 2D mode using a dedicated measurement tool.

LV Tissue Doppler					
IVTWTd	12.8	mm	LVVCD	55.3	mm
IVTAd	15.6	mm	LVVCD	36.2	mm
IVTAd	149.3	ms	IVTAd	55.2	ms
IVTAd	67.0	%	IVTAd	34.5	%
IVTAd	10.6	mm	IVTAd	19.1	mm
IVTAd	47	mm	IVTAd	94.1	mm
IVTAd	4.403	mm	IVTAd	265	g



**Interventricular septum:** Myocardial wall motion can be assessed with high temporal resolution using Pulsed Wave Tissue Doppler Imaging.



**Anterior myocardial infarction:** Hypokinetic IVS and hyperkinetic posterior wall are clearly visualized using Artida's unique speckle tracking technology.\*

# Getting to the heart of the matter.

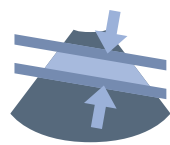
Artida brings best-of-breed cardiac 4D imaging to everyday clinical use. Its intuitive SmartSlice functions allow you to cut, slice and position your 4D volume quickly and conveniently.

A three-dimensional assessment of the heart provides better, more accurate data. And more accurate results lead to better and more efficient treatment. Realistic cardiac 3D images can also help you to convey examination results to surgeons and other professionals or to your patients in a more comprehensible and illustrative way.

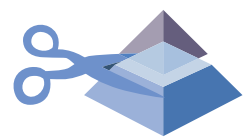
A variety of prospective and retrospective volume acquisition modes give you the freedom and flexibility to easily acquire and store 4D volumes. Artida's easy-to-use volume navigation is totally delay-free and enables fast and accurate surfing of the raw data volumes at any time, either on the system or off-board.



Easy Crop allows you to quickly segment 4D volumes with variable c-plane settings and push-button simplicity.



Artida's innovative D Crop pointing function allows you to crop and position your 4D volume in just two simple steps.

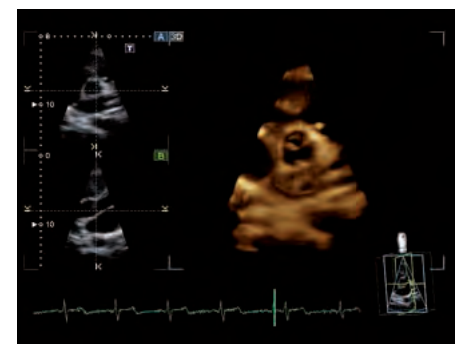


Cut 3D removes unwanted tissue instantly to reveal the region of interest at the touch of a button.

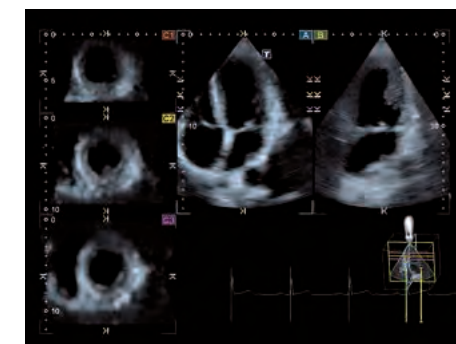


The INTIAL hard key on Artida's console instantly brings you back exactly to the point where you started.

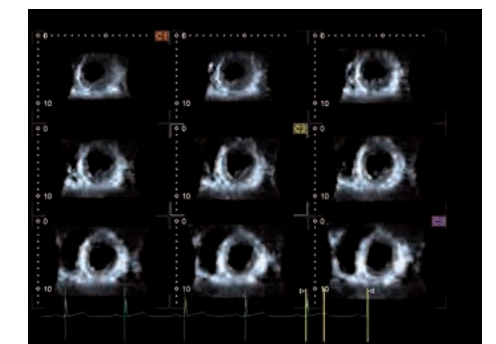
The fully sampled matrix array transducer is the smallest, shortest and most lightweight 4D transducer in the market.



4D renderings with multiple synchronized MPRs keep you in full control over the region of interest.



The simultaneous 5-slice view allows full visual assessment of the left ventricle at a glance.



Artida's 9-slice view enables you to compare results with other imaging modalities quickly and with ease.



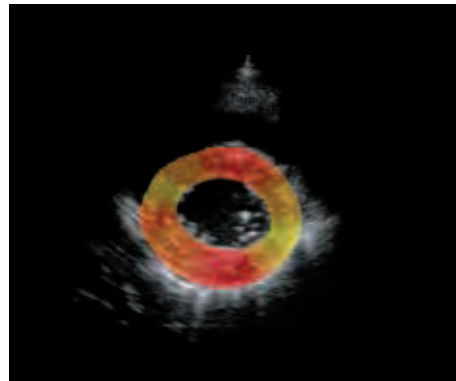
# Go explore.

With 3D speckle tracking technology Artida ushers in a new era of dyssynchrony imaging and advanced regional wall motion assessment.

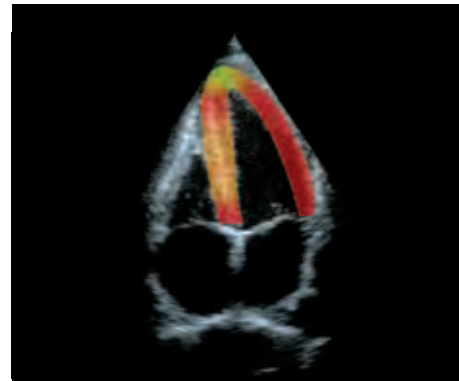
Toshiba's proprietary speckle tracking technology provides immediate visual and quantitative access to regional myocardial wall motion in 2D, and for the first time also in 3D. With Artida you can now

access and quantify standard parameters such as strain, strain rate or displacement, alongside advanced three-dimensional myocardial motion patterns such as rotation, twist and torsion.

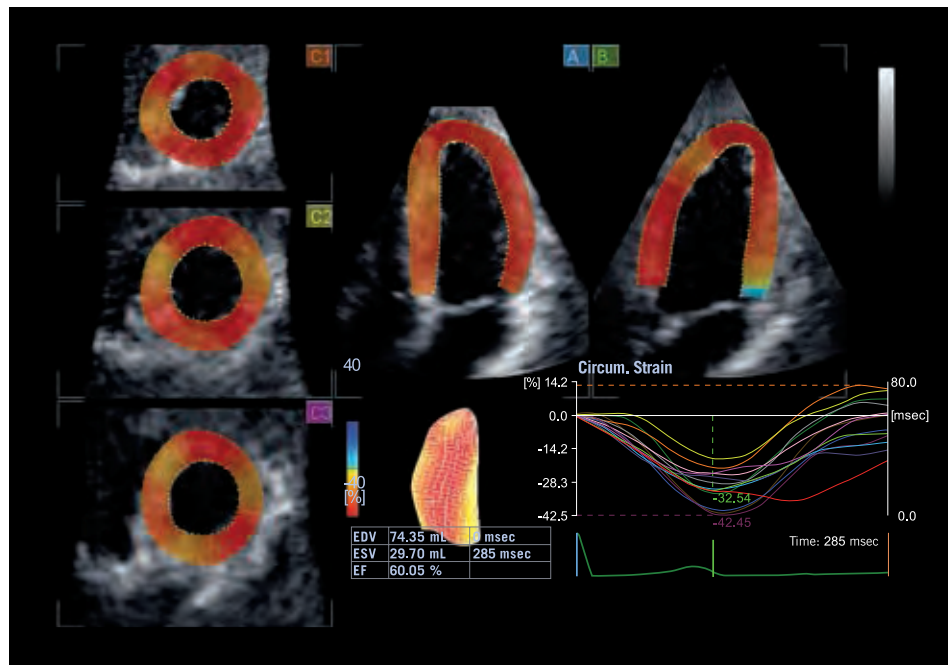
## Normal values



Radial strain in parasternal short axis view.

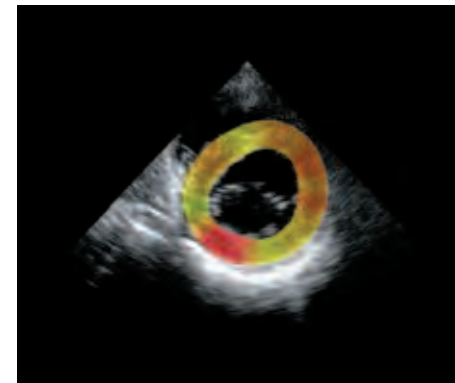


Transversal strain in apical four chamber view.

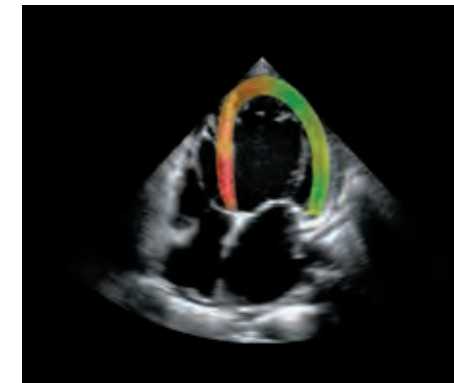


Regional strain components in combination with global LV function in 3D tissue tracking.

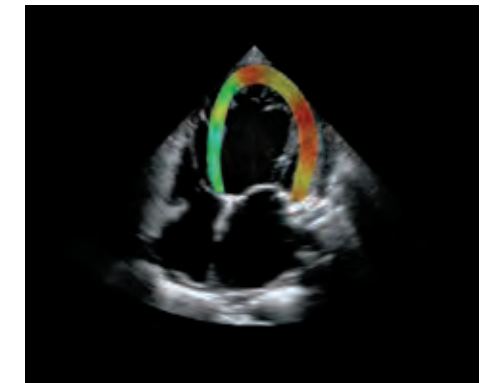
## Dyssynchrony



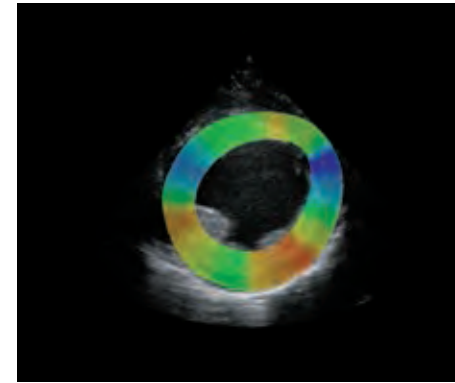
Posterior infarction with delayed contraction of posterior wall.



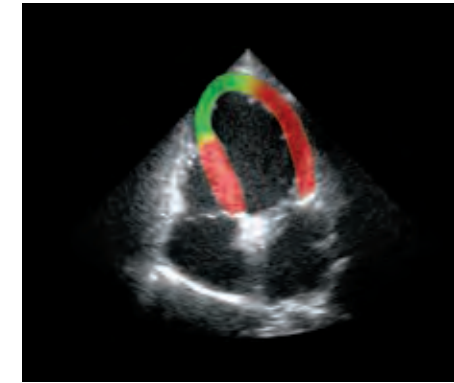
Early systolic contraction of IVS in LBBB.



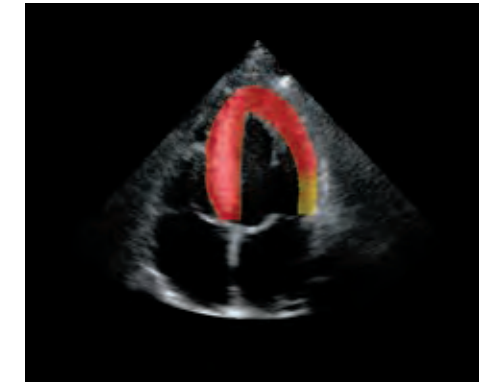
Delayed post-systolic contraction of lateral wall in LBBB.



Diffuse pattern of dyssynchrony in cardiomyopathy.



Apical four chamber view of apical infarction.

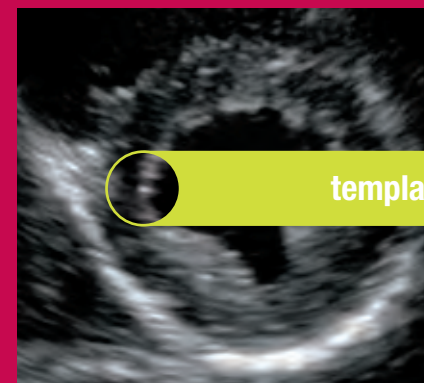


Transversal strain in LV hypertrophy.

## Speckle Tracking

Speckles, the tiny white spots appearing in ultrasonic images, are interference patterns caused by randomly distributed scatterers. Because speckles follow tissue movement, their motion can be tracked over time by means of pattern recognition. Artida's unique 3D speckle tracking technology is the first to follow tissue movement in 3D space to quantitatively assess all components of myocardial wall motion.

### Current frame

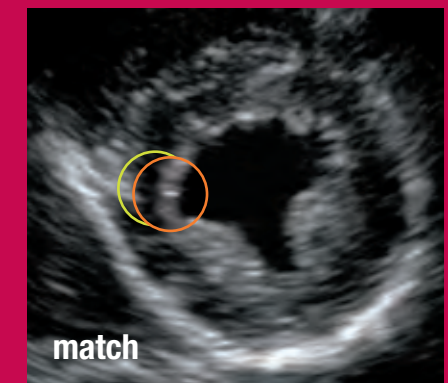


template image

### Next frame



search



match

Speckles are identified in each frame by means of pattern recognition.

In the adjacent frame the new position of each speckle is determined by an intelligent search-and-match function. The amplitude of movement provides quantitative information about myocardial wall motion.

# Productivity unlimited.

From imaging to quantification, from reporting to archiving, Toshiba provides a full spectrum solution that helps you manage routine and advanced clinical studies more efficiently.



Artida integrates easily into networked environments from small simple systems right up to complex enterprise networks. Strict compliance with DICOM standard and IHE initiative ensure uncomplicated installation, broad compatibility and a wide range of network functionality.

Designed to work seamlessly within an existing network installation, an offline workstation enables full access to all studies any time and anyplace. With embedded raw data functionality and a host of clinical tools you can review, analyze, report and archive your data quickly and easily.

# Connect to a world of difference.

Toshiba's promise is simple: As a world leader, we make the extra effort to provide you with solutions that are efficient and versatile. We are reliable partners in helping you drive down costs while improving the quality of patient care.

Our comprehensive service network offers professional support and a full range of service options to help you maximize performance and control expenses.

We take a hands-on approach to education so that you will always get the best from Toshiba technology.

We provide a variety of financing options so you can take advantage of premium medical imaging equipment instantly.

As with all our products, Artida is designed and manufactured to meet the highest standards of reliability and environmental friendliness

Toshiba - a partner you can rely on. Always.

