

GE Healthcare



## Signa<sup>®</sup> HDxt 1.5T

Optima<sup>®</sup> Edition 16.0

### See More, Do More...

The next generation in High-Definition MR.







## Expect More

You've been heard. When you want more out of your MRI scanner, GE listens. And when you demand more accuracy, more productivity, and more support, GE delivers. Built on the high definition platform you know and trust, Signa HDxt offers an MR System that allows you to see more, do more, and expect more than ever before.

Introducing Signa HDxt 1.5T with Optima Edition package, the next generation in High-Definition MR.



**Engineered for high definition  
so you can see more.**

See more with truly high-definition,  
anatomically optimized imaging.  
Engineered for enhanced image contrast,  
reduced blurring, smaller field-of-view  
prescriptions, and reduced artifacts.



**Designed for productivity  
so you can do more.**

Do more with consistent high-quality imaging through can't-miss applications. Designed for optimal fat suppression, tissue characterization, and artifact reduction, every time.

# Signa HDxt 1.5T

**Clinically proven to give you more  
on every exam, every day.**

GE was the first to introduce 1.5T MR technology. Today, we have the world's largest installed base of 1.5T scanners. And we're the only MR manufacturer celebrating more than a quarter of a century of upgradeability. In fact, HDxt is available as a new system—as well as an upgrade to our current installed base customers.

Signa HDxt 1.5T: Highly rated service.  
The peace of mind you're looking for.

**At 1.5T, the only choice is GE.**

**Built for longevity  
so you can expect more.**

Expect more with over 25 years of proven commitment to MR system longevity. Built for upgradeability, uptime, and investment protection—GE's Continuum\* commitment allows you to expect more from your scanner.

# See More

## Engineered for high-definition, anatomically optimized imaging

The Signa HDxt 1.5T is engineered from end-to-end to allow you to see more. With GE's high-density coils, data acceleration technology, and high-definition applications optimized for each anatomical area, GE can deliver images with the enhanced contrast, clarity, and accuracy you need.

### Premium Performance

Signa HDxt 1.5T starts with a foundation of high-performance components, whose integration enables superior imaging capabilities that aim to bring you the clearest, crispest images possible.

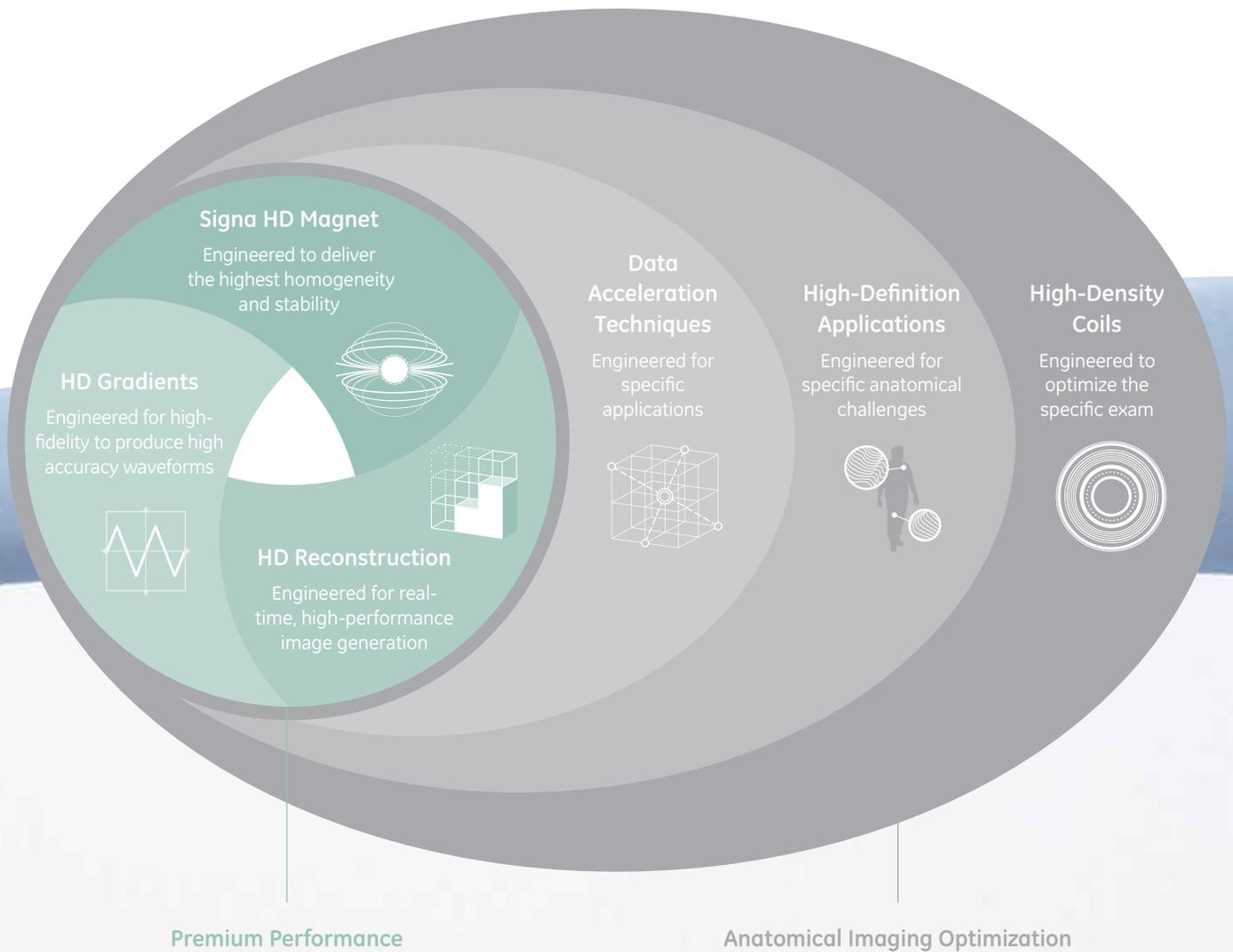
### Anatomical Imaging Optimization

High Definition MR is more than just pulse sequences, it is the sum total of our system.

And the best part? GE has done the tweaking for you. Every component has been specifically designed to deliver more detail and more clarity, without compromise.



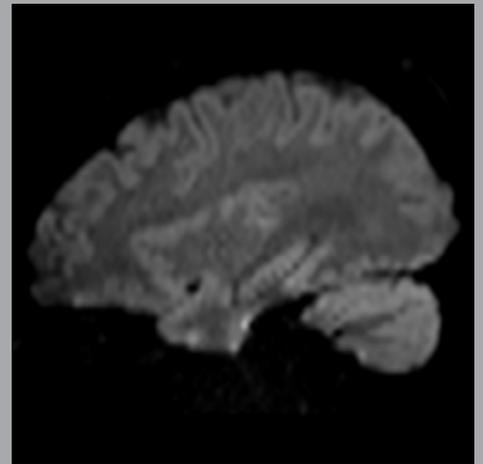
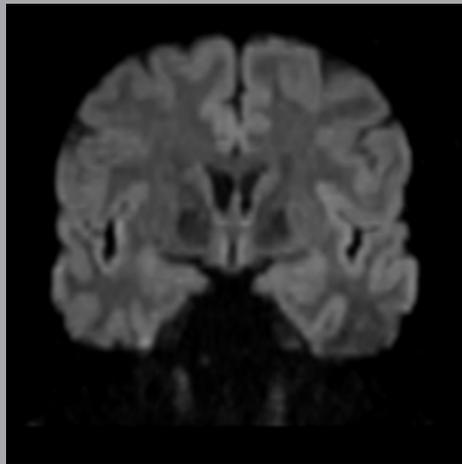
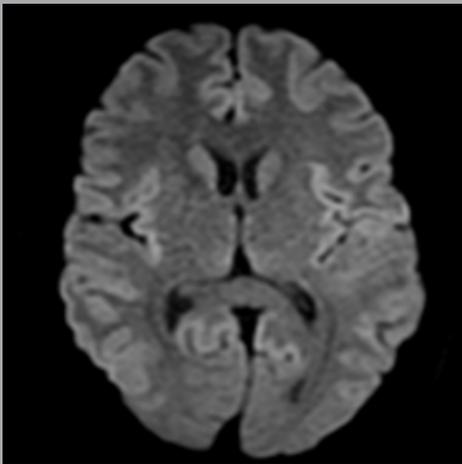
## The Signa HDxt MR Imaging Model



See more in

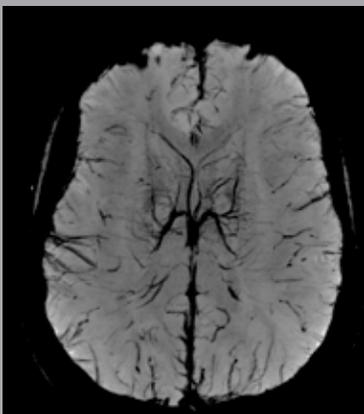
# Neuro Imaging

GE's advancements in neuro imaging continue with the delivery of Optima Edition enhancements. In short, Signa HDxt 1.5T Optima Edition is a natural for neuro.



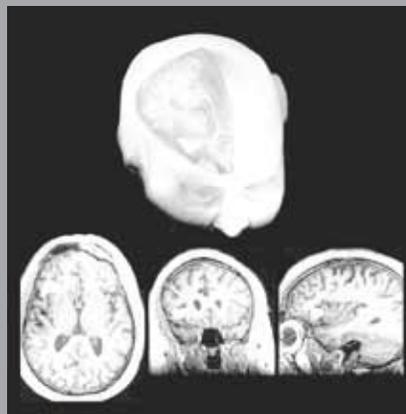
## NEW Enhanced DWI

The enhanced DWI technique supports multiple b-values in one acquisition with flexible control of NEX for each b-value. Novel diffusion techniques "3-in-1" and "tetrahedral" allow applying gradients in multiple directions simultaneously to improve scan efficiency and signal-to-noise ratio.



## SWAN

SWAN is a multi-echo 3D imaging technique that helps visualize and clearly delineate small vessels and microbleeds, as well as large vascular structures, and iron or calcium deposits in the brain. This image of the entire brain with the 0.5 x 0.6 x 2 mm voxel was acquired in 4:50 min.



## BrainWave

A suite of applications for functional brain mapping. Includes a robust acquisition sequence, easy-to-administer paradigms and complete post-processing and visualization tools. BrainWave Fusion integrates an eloquent cortex map and DTI white-matter trajectories with a high-resolution 3D anatomy data set.

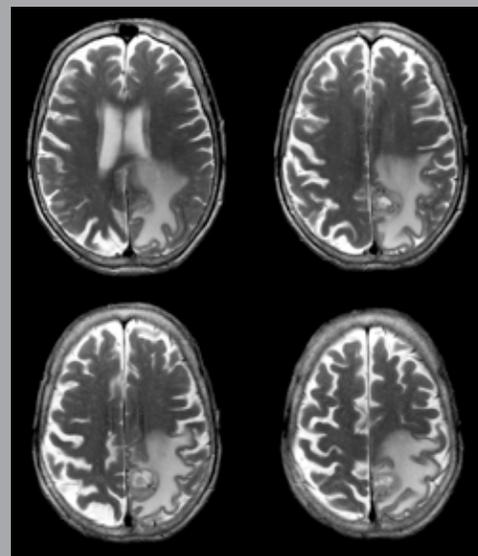
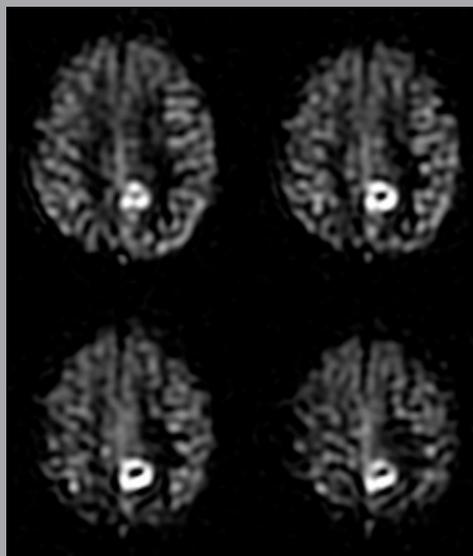


## PROPELLER\*

Correct for motion artifacts and enhance tissue contrast without compromising image resolution or prolonging scan time—and reduce susceptibility artifacts to clearly visualize small or subtle lesions. Generate consistently excellent images with less retakes, even on restless children, or patients with tremors.

# NEW 3D ASL

3D ASL is a robust non-contrast tissue perfusion imaging technique that provides quantitative assessment of cerebral blood flow (CBF) and color perfusion maps (bottom). The hyperintense signal in the left parietal occipital lobe on this axial T2 image (far right) correlates well with clearly depicted hyperperfusion on the 3D ASL image (right). Note excellent SNR throughout the entire anatomy.



# Cube\*

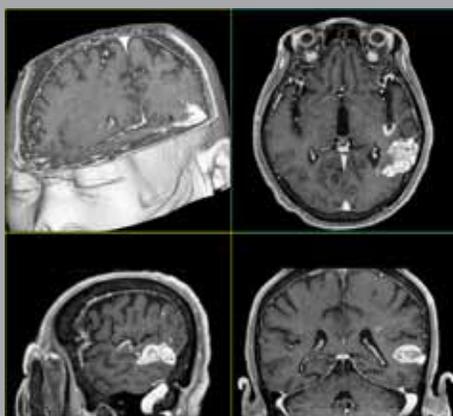
Cube replaces several plane-after-plane 2D acquisitions with a single 3D volume scan—providing you with T2, T2 FLAIR, or PD contrast. Easily reformat sub-millimeter isotropic volume data from a single acquisition into any plane without gaps—and with the same resolution as the original plane.

ARC is an innovative, auto-calibrating, data-driven, parallel imaging method designed to reduce scan time and streamline reconstruction with high accuracy. In addition, it enables small fields of view during prescription.



# BRAVO

A 3D inversion-prepared SPGR technique, BRAVO provides high resolution T1-weighted brain images with optimized grey-white matter contrast, using GE's innovative self-calibrating ARC parallel imaging technique. This 3D image of a patient with brain metastasis was acquired with 1 mm<sup>3</sup> voxel.



# High-Density Head-Neck-Spine Array

Image the head, neck, and spine without changing arrays or repositioning the patient. And, do it with high definition.



See more in

# Body Imaging

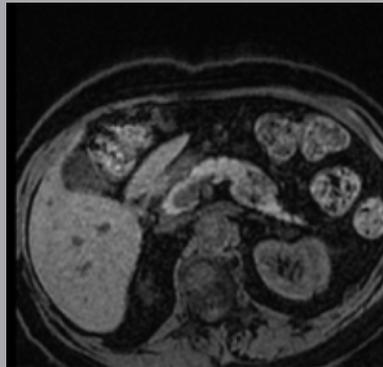
Get the whole picture with GE's comprehensive MR body imaging solutions—an array of advanced tools designed to meet the needs of you and your patient.

**NEW**

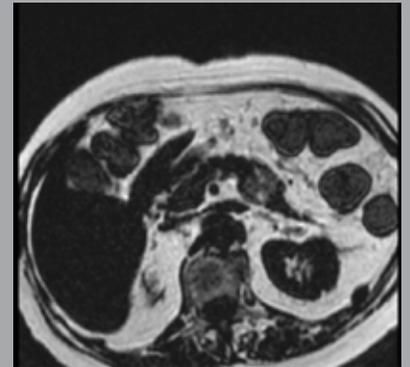
## LAVA Flex

LAVA Flex is a 3D FSPGR imaging technique that generates water-only, fat-only, in-phase and out-of-phase echoes out of one single acquisition that is typically completed in one 20 s breath-hold. The additional contrasts can aid in differential diagnosis, like in this case of angiomyolipoma, a tumor with fat component. LAVA Flex can replace LAVA in the multi-phase dynamic study of the liver.

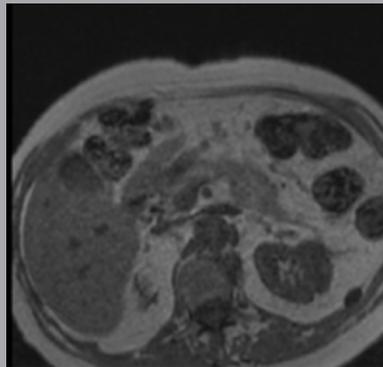
Water-only



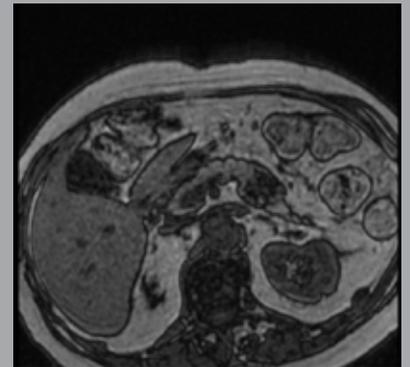
Fat-only



In-Phase

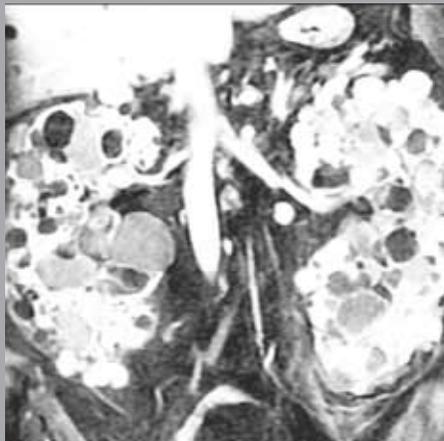


Out-of-Phase



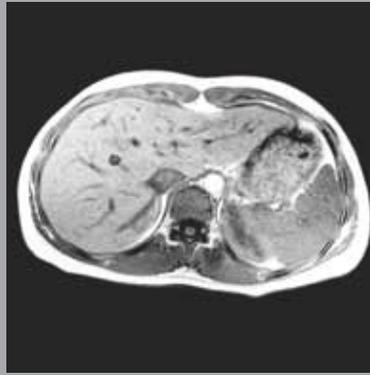
## LAVA

LAVA provides whole-abdominal coverage at high resolution in short breath-holds, with an excellent fat suppression and resolution.

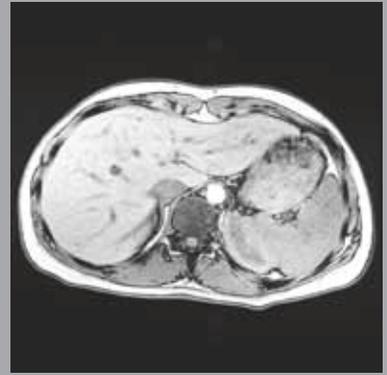


## 3D Dual Echo

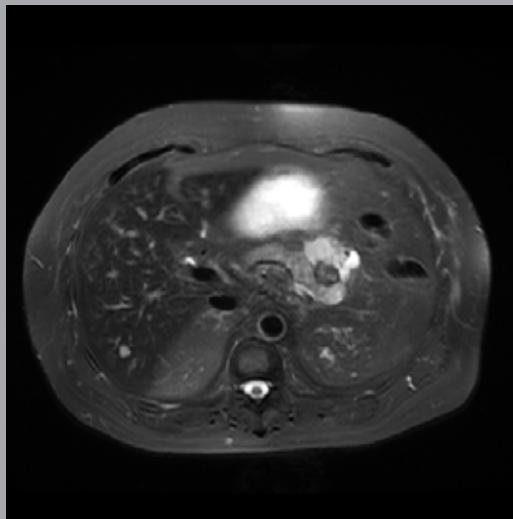
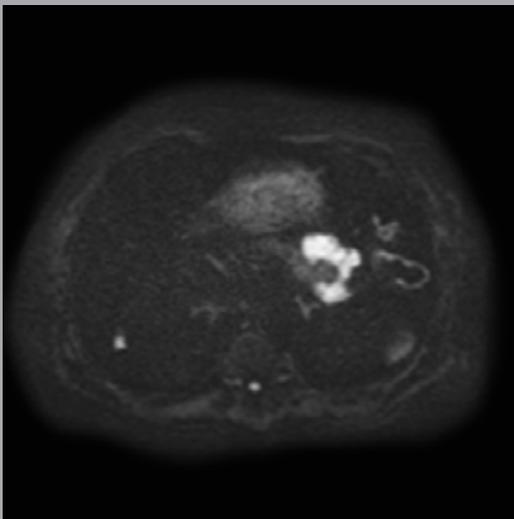
3D Dual Echo produces perfectly registered, in-phase and out-of-phase images in a single breath-hold—and eliminates inter-slice gaps that could compromise small lesion detection.



In-Phase



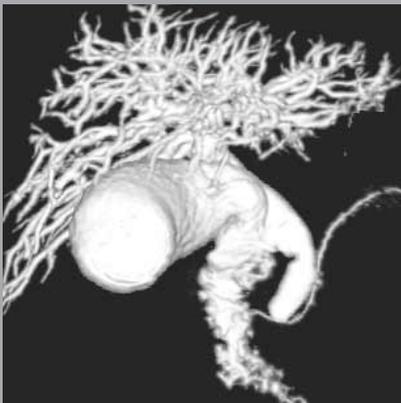
Out-of-Phase



**NEW**

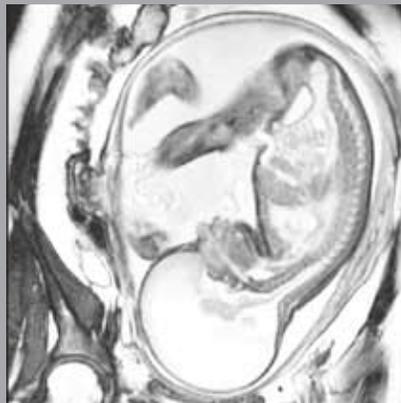
## Enhanced DWI

The enhanced DWI technique supports multiple b-values in one acquisition with flexible control of NEX for each b-value. Novel diffusion techniques “3-in-1” and “tetrahedral” allow applying gradients in multiple directions simultaneously to improve scan efficiency and signal-to-noise ratio. This eDWI image of a patient with a pancreas endocrine tumor and liver metastases (left) was generated using inversion recovery and a b value of 600 s/mm<sup>2</sup>. An FRFSE T2 image (right) provides anatomic detail.



## Enhanced MRCP

This 3D technique allows for multi-planar reformats, and the volumetric images can be manipulated to see behind overlapping structures.



## FIESTA

FIESTA provides images with very high signal-to-noise in scan times as short as 60ms. FIESTA is also equipped with an optional fat suppression pulse to mitigate bright signal from fat.



## HD Body Array

Available in 8-channel and 12-channel configurations, this high-density design is optimized for parallel imaging, superior image quality, and short scan times.

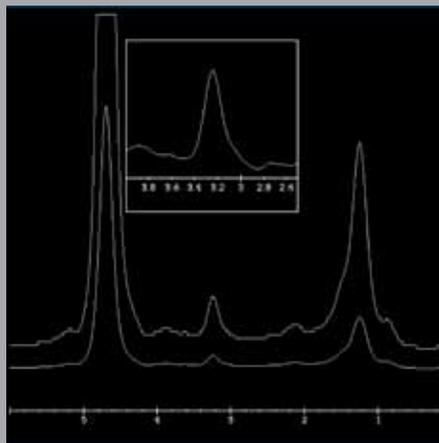
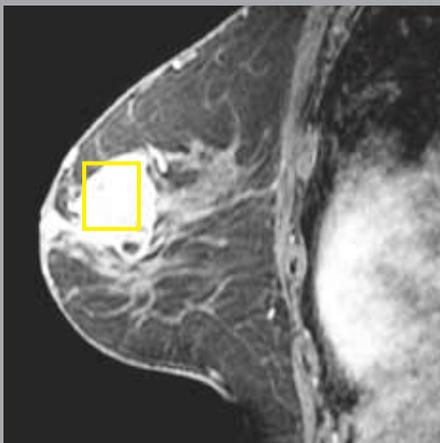
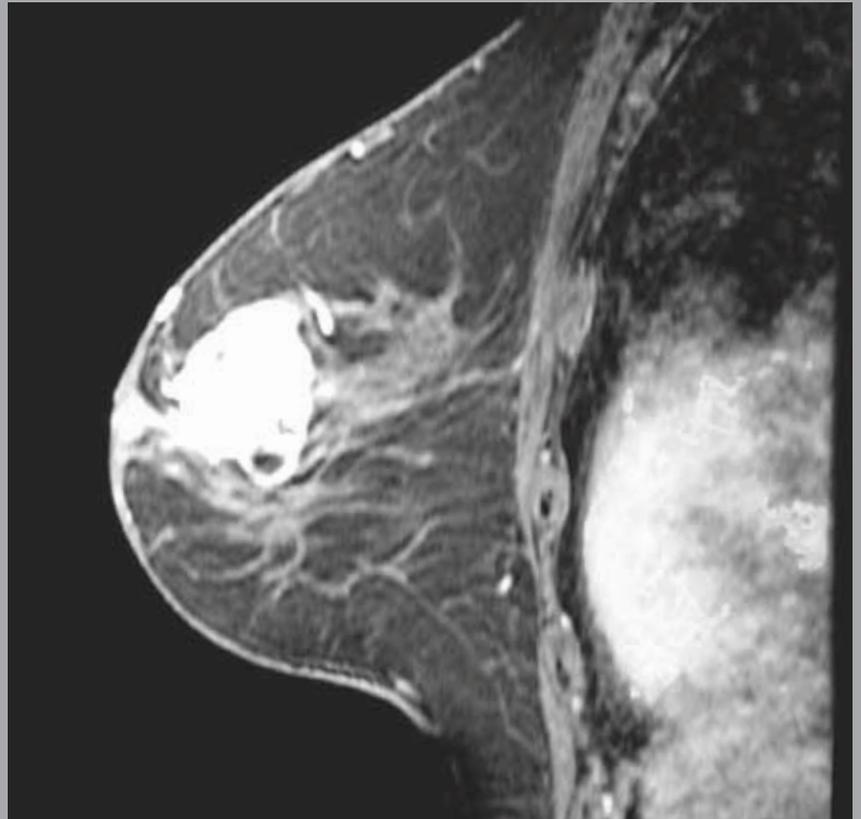
See more in

# Breast Imaging

Not all breast MR needs are the same—and neither are all breast MR imaging solutions. With applications and tools designed specifically for breast MR, GE offers you the most complete portfolio.

## VIBRANT

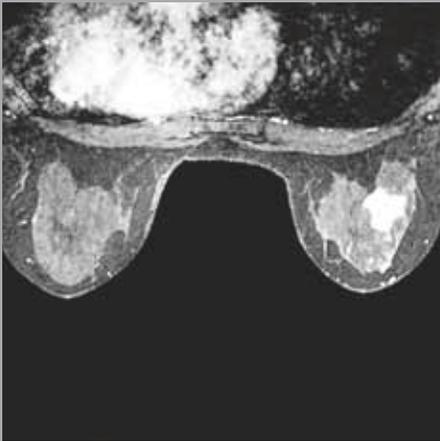
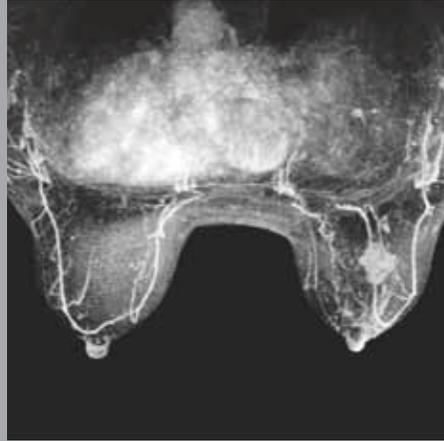
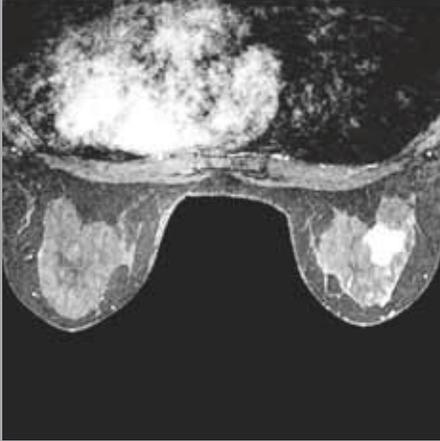
VIBRANT lays the foundation of breast MRI with the highest combined spatial detail and scanning speed. The bilateral shimming ensures uniform bilateral fat saturation. No trade-offs between high spatial and high temporal resolution. Scan both breasts in one fast exam to help increase diagnostic confidence and patient comfort.



## BREASE\* & CADstream

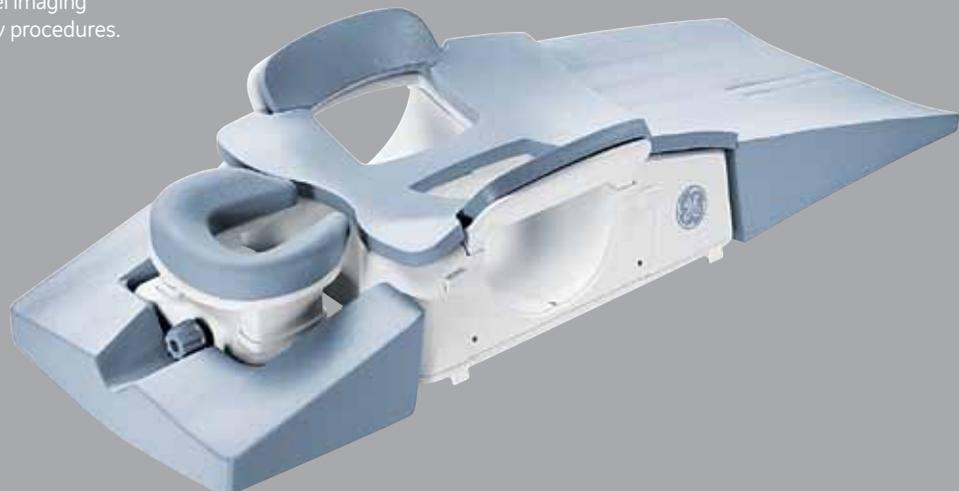
BREASE helps enhance diagnostic confidence by improving the ability to characterize lesions and monitor response to therapy. It is a breast-specific, single-voxel spectroscopy application designed for ease-of-use and visualization.

CADstream (from MERGE) automatically generates the post-processed series and identifies the most suspicious washout curves. Sureloc, included with CADstream, enables point-of-procedure control for MR-guided biopsies from the HDxt console.



## High-Density Breast Array

The high-density, 8-channel HD Breast Array provides high SNR, excellent parallel imaging acceleration, and access for biopsy procedures.



See more in  
**MSK Imaging**

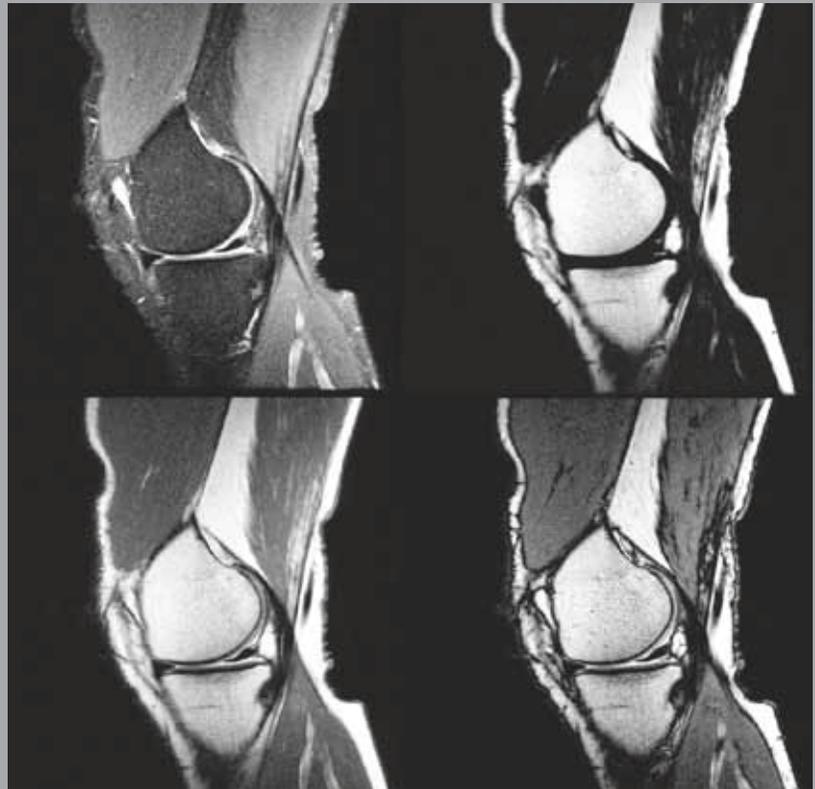
With a technique that allows you to scan once and get multiple contrasts—water only, fat only, in-phase, and out-of-phase—and delivers virtually infallible fat suppression, Signa HDxt 1.5T with Optima Edition package makes no bones about capturing musculoskeletal anatomy like you've never seen it.

**IDEAL**

This innovative fat/water separation technique provides multiple contrasts from one acquisition for consistent, uniform fat suppression virtually every time—patient to patient, technologist to technologist.

Water-only

Fat-only

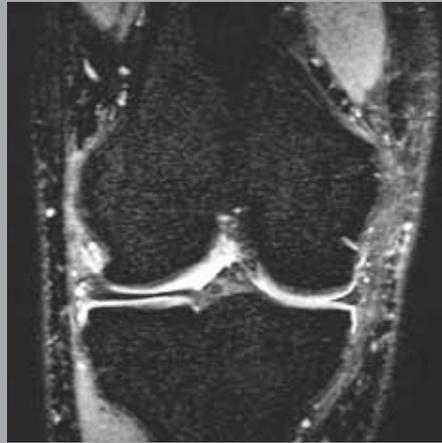
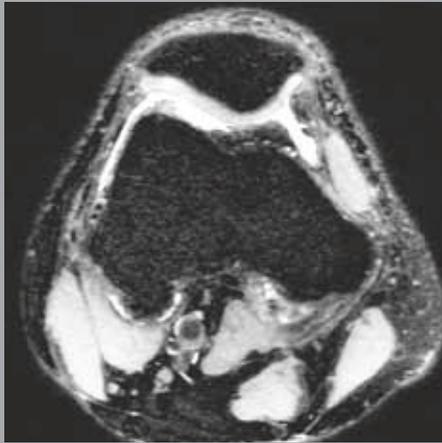


In-Phase

Out-of-Phase

HD Shoulder  
Array  
Images





## Cube\*

Cube replaces several slice-by-slice, plane-after-plane 2D acquisitions with a single 3D volume scan utilizing state-of-the-art imaging acceleration technique, ARC. Easily reformat sub-millimeter isotropic volume data from a single Cube acquisition into any plane—without gaps, and with the same resolution as the original plane.

## CartiGram\*

CartiGram is a non-invasive imaging method to assess articular cartilage integrity, detect early cartilage degeneration, and non-invasively monitor patient progress. It allows better visualization of collagen fiber network loss or degradation that translates into focal T2 increase.

## High-Density Coils

### HD Wrist Array

The HD Wrist Array is an 8-channel phased array design that is optimized for parallel imaging.

### HD Knee Array

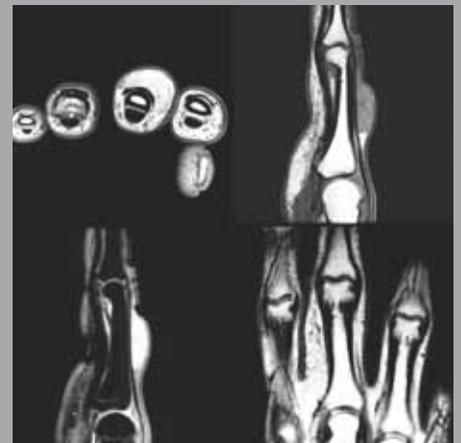
Tapered to the knee for superb SNR performance, the HD Knee Array's 8-channel, 9-element transmit/receive phased-array design virtually eliminates aliasing artifacts for superior, high resolution imaging.

### HD Foot and Ankle Array

The HD Foot and Ankle Array is optimized for ASSET parallel imaging and produces exquisite images of the structures of the foot and ankle. The design also provides fast and easy set-up.

### HD Shoulder Array with Concentric Technology

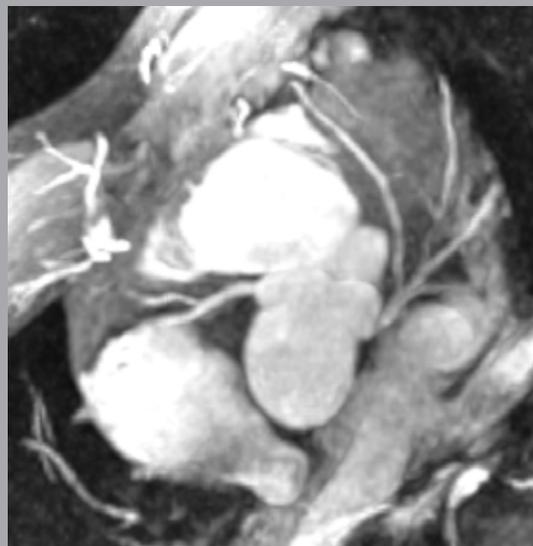
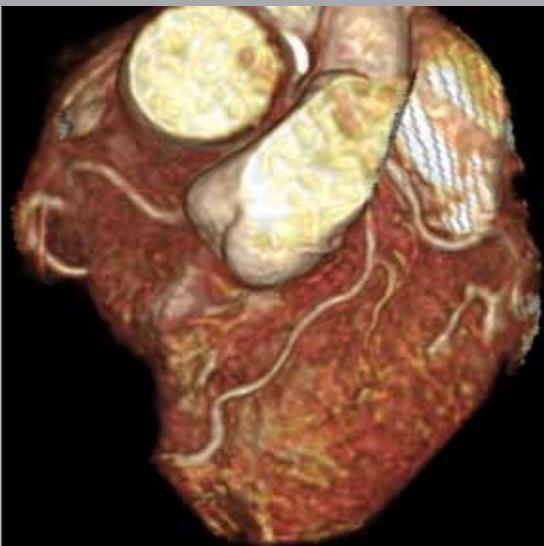
The HD Shoulder Array introduces an innovative concentric coil design by GE that provides improved coverage, while also improving SNR penetration. It also is optimized for off-center imaging with robust fat saturation.



See more in

# Cardiovascular Imaging

Advanced vascular techniques that provide high-definition results without temporal tradeoffs coupled with the ability to deliver comprehensive cardiac studies. Signa HDxt 1.5T with Optima Edition package takes cardiac and vascular imaging to heart.



## NEW 3D Heart

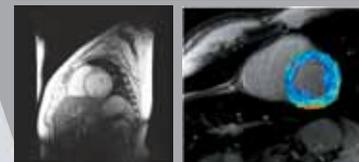
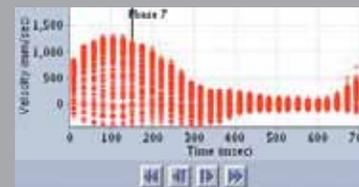
3D Heart allows free-breathing coronary artery imaging. Volume Viewer enables advanced visualization of coronaries in 3D view or MIP view.

## ReportCard, Flow Analysis, StarMap

ReportCARD 4.0, a cardiac MR analysis tool, provides a comprehensive cardiac calculation and research package, and includes automatic LV segmentation, myocardial evaluation, time course analysis, and innovative tools for PFO analysis. A complete CV report can be printed and archived. Database query tools are also included.

Flow Analysis provides an automated calculation of positive and negative flow volumes as well as a summary table of peak velocities across all cardiac phases.

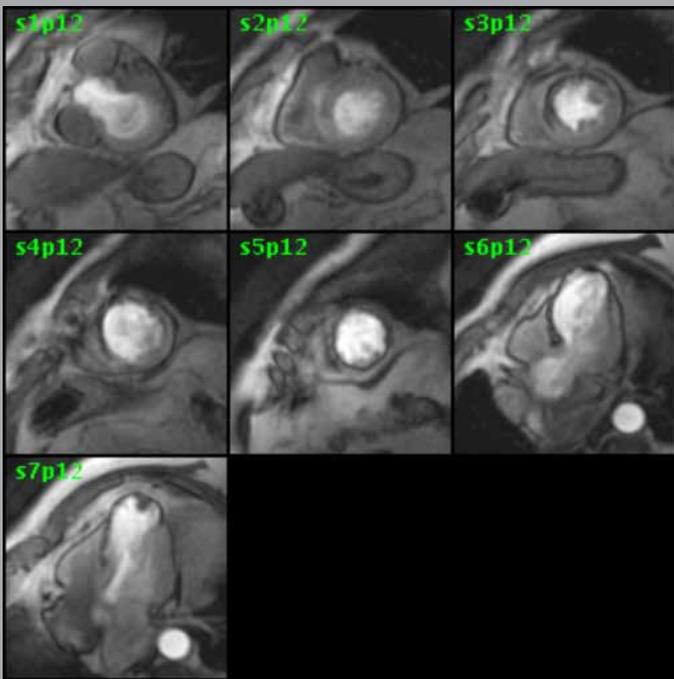
StarMap is used to assess the presence of iron by producing grayscale and color maps that show the T2\* or rate of signal decay (R2\*) of the heart and liver.





**NEW**  
Cine IR

Optimal TI time can be easily visualized in a single breath-hold with Cine IR.



**NEW**  
FGRE Time Course

FGRE Time Course allows multiplane visualization of LV, helping detect ischemic defects and diseases such as an apical thrombus in this image.



FIESTA

FIESTA 2D offers a white-blood imaging technique that is sensitive to signal loss in the presence of turbulent flow (2D). 3D FS FIESTA enables high-resolution imaging of the coronary artery in a short breath-hold.



MR Echo

With MR Echo, any plane can be imaged in real time and archived. Unique pathologies that may only be seen with true real time cardiac scanning, such as tamponade, are exquisitely visualized.



HD Cardiac Array

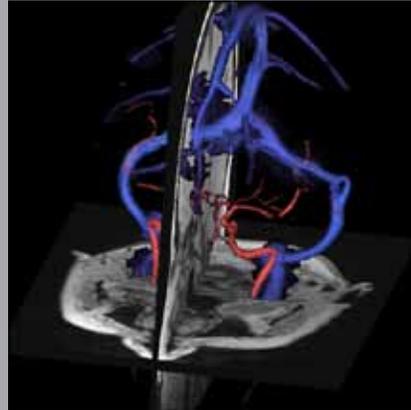
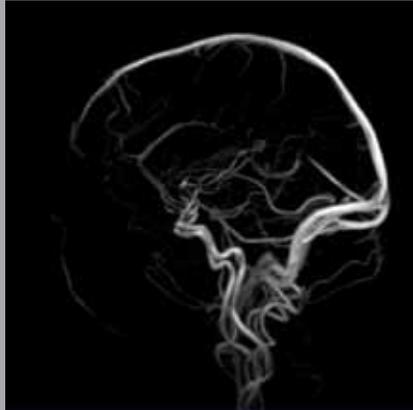
This 8-channel array from GE Healthcare enables parallel imaging, even in oblique planes for enhanced cardiac imaging.

# See more in Cardiovascular Imaging

Continued

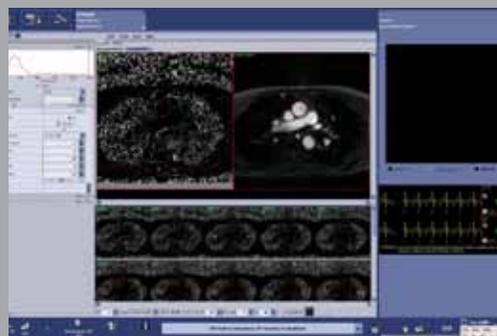
## Inhance 3D Velocity

Inhance 3D Velocity provides non-contrast vascular and anatomical information in the same acquisition. Advanced visualization tools help review and cross-reference the information.



## Inhance Inflow IR

Respiratory-triggered free-breathing acquisition  
Inhance Inflow IR provides exquisite details on renal arteries, without the need for contrast injection.



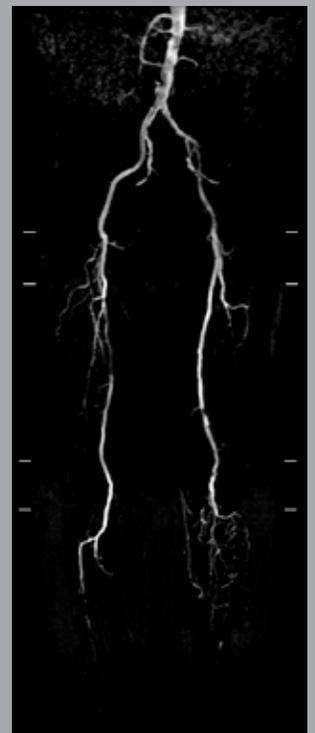
## Flow Analysis 4.0 on the Console

Process and analyze flow data right on the console in the scan room—without transferring data off to the workstation—to see if you need to obtain another scan or plane while your patient is still on the table.



## TRICKS

TRICKS enables high-resolution, time-resolved vascular imaging without the need to make a trade-off between detail and speed. Large 3D volumes can be acquired in under two seconds.



## Inhance 3D DeltaFlow

Inhance 3D DeltaFlow is a robust non-contrast-enhanced peripheral MRA technique that enables visualization of the vascular tree without venous contamination. Note good vasculature delineation on this image of a patient with peripheral vascular disease.

# Liberty\* Docking System: more than a table

## Designed for Productivity

Prepare the patient outside the scan room and improve workflow by utilizing a second table

## Designed for Safety

One technologist can remove a patient in less than 30 seconds

## Designed for Service Expansion

Grow clinical services with additional tables

MRgFUS dedicated uterine fibroid ablation table by InSightec or the Signa OR-compatible table for MR Surgical Suite MR Oncology Package with flat table top for radiation oncology

Liberty  
Docking System  
built on GE's over  
20 years experience  
with detachable  
tables



# Do more

The Signa HDxt 1.5 with Optima Edition 16.0 package is designed to enhance your productivity

In the era of increasingly complex exams, simplicity and consistency are more important than ever before. Productivity starts with intelligent tools for “can’t-miss” imaging, time after time, no matter how difficult the exam or challenging the patient. Productivity continues to improve with a detachable table—the Liberty® Docking System—that enables you to comfortably prepare your next patient while you’re still scanning the current one. And productivity expands even more with one of the industry’s best known and technologist-friendly user interface.

Consistent imaging  
for every exam,  
every patient,  
every time



Can't-miss software  
applications designed for  
imaging consistency

**Cube\***

Designed to help you increase  
your productivity. Scan once.  
Get multiple planes.

**IDEAL**

Designed to help you reduce fat sat  
failures and magnetic susceptibility  
effect artifacts. Scan once.  
Solve multiple problems.

**LAVA Flex**

LAVA Flex generates water-only,  
fat-only, in-phase and out-of-phase  
contrasts in one single 20-second  
breath-hold.  
Scan once.  
Get multiple contrasts.

**Inhance Inflow IR**

Excellent non-contrast-enhanced  
renal MRA that works.

**3D ASL**

Remarkable non-contrast tissue  
perfusion and quantitative assessment  
of cerebral blood flow (CBF) in 3D.

## Signa User Interface designed for simplicity

The Signa HDxt wide console monitor is a high resolution display that displays multiple windows which are simultaneously accessible.

Making tough  
exams simpler

### Greater Confidence

Half of MR Technologists surveyed felt best equipped to generate high quality images using GE MR systems over any other scanner\*\*

### More Familiar

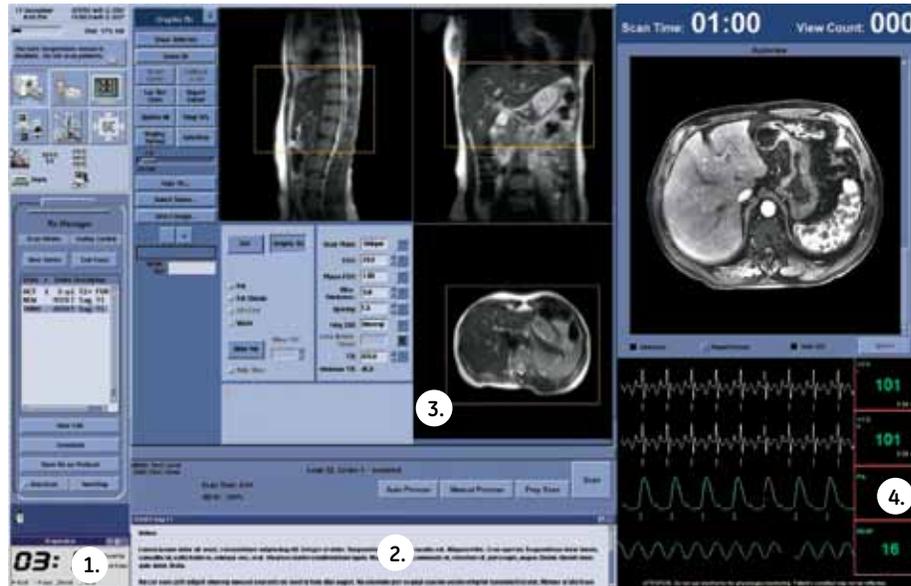
Over half of MR Technologists surveyed know how to operate a GE MR system\*\*

### Easier to Use

MR Technologists selected GE MR 2-to-1 as easiest to use\*\*

\*\*Source: 200 US Technologists Randomly Surveyed by IMV, Sponsored by GE Healthcare. October 2007

## User Interface Console & Wizard Guides



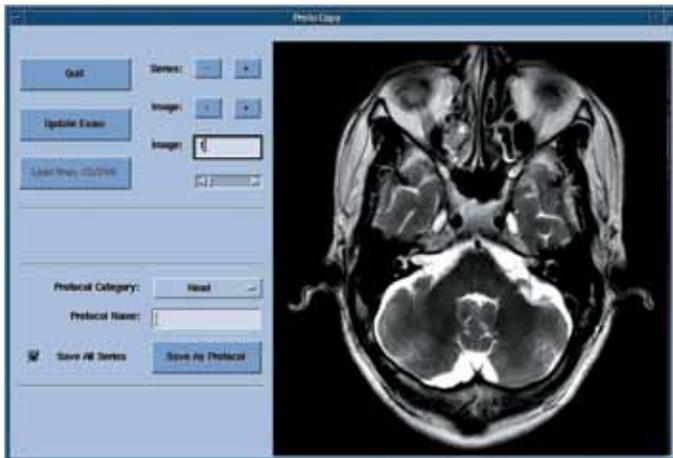
1. Easy access to timing screen.

2. Protocol notes allow you to permanently load physician preferences and protocol information to ensure imaging consistency.

3. Auto TR eliminates time spent finding the lowest TR depending on prescribed slices.

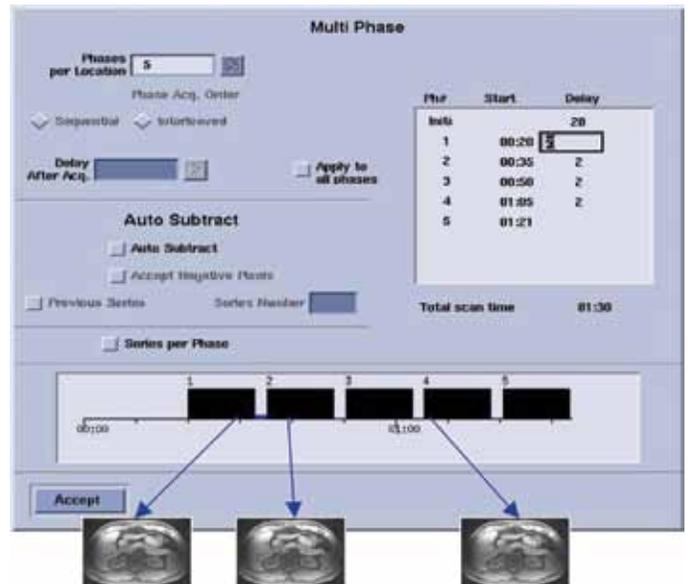
4. Gating and triggering screen is easily visualized, eliminating the need to change screens when evaluating waveforms.

## ProtoCopy



- Copy a protocol after the scan has been completed
- Share between multiple-facilities or centers with a mouse click

## DynaPlan

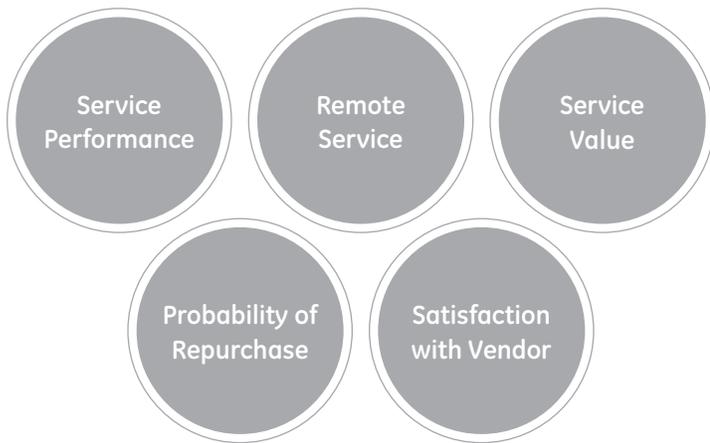


- Optimize your breast or abdomen delay times
- Subtraction, mask-phase and unique time delays are optimized for even the most unique protocols
- Preferences are permanently stored, simplifying future use

## Built upon an entire network to help you get the most out of your investment—from day one

Our service team paired, with GE training and consulting services, can help you get the most out of your investment today and tomorrow.

More performance from the service team ranked number one\*\* in the industry for:



### More from your network

#### The Physician-Instructed MR Masters Series

The first of its kind in the industry—offering clinicians the widest selection of training and educating programs on MR technology and techniques.

#### The GE Healthcare Institute

Receive comprehensive hands-on training on your system at our dedicated educational facility.

#### TiP Virtual Assist

Combining expertise and convenience, live interactive applications training with remote trainers helps you get the most from your Signa HDxt 1.5T.

#### Onsite Training

Detailed, on-site training and consulting to help you grow clinical performance, referral power, and your bottom line.

\*\*Source: ServiceTrack™ Imaging Report 2007, MR Systems, IMV, Ltd. Greenbelt, MD. Survey exclusive to United States.





Your support network is here for you today and in the future, when and where you need it.

# Expect more

## Built for upgradeability, uptime and investment protection—it's all about system longevity

With ever increasing operational costs and the need to stay technologically current, you need a strategic vendor who continuously provides for you.

The GE MR mission: flexible systems with a future. The upgradeability benefits from GE are unmatched. It starts with a proven continuum of more than 25 years that's driven by a magnet designed for longevity and seamless upgradeability. It continues with the easy-to-incorporate breakthrough applications and system enhancements that keep customers current in today's ever changing and increasingly competitive market. Rest assured, your investment is always protected.

Wherever you are, from wherever we are, your Signa HDxt 1.5T is supported by the world's most advanced portfolio of MR service and asset management tools, so you reap all the benefits of GE MR ownership. Maximized uptime. Optimized accuracy and consistency. Higher productivity. Better patient care. And true peace of mind.

## Built for investment protection

GE introduced the industry's first short-bore 1.5T magnet. Manufactured in Florence, South Carolina, it's built for years of service and upgradeability—instead of replacement—to protect you from obsolescence.

A magnet built  
to last.

The industry's  
choice for reliability—  
not replacement.



## Built for a Continuum

GE has the proven history of upgradeability that for over 25 years has enabled customers to expand the capability of their system with new surface coils, new software applications, or even new system platforms without replacing the magnet.

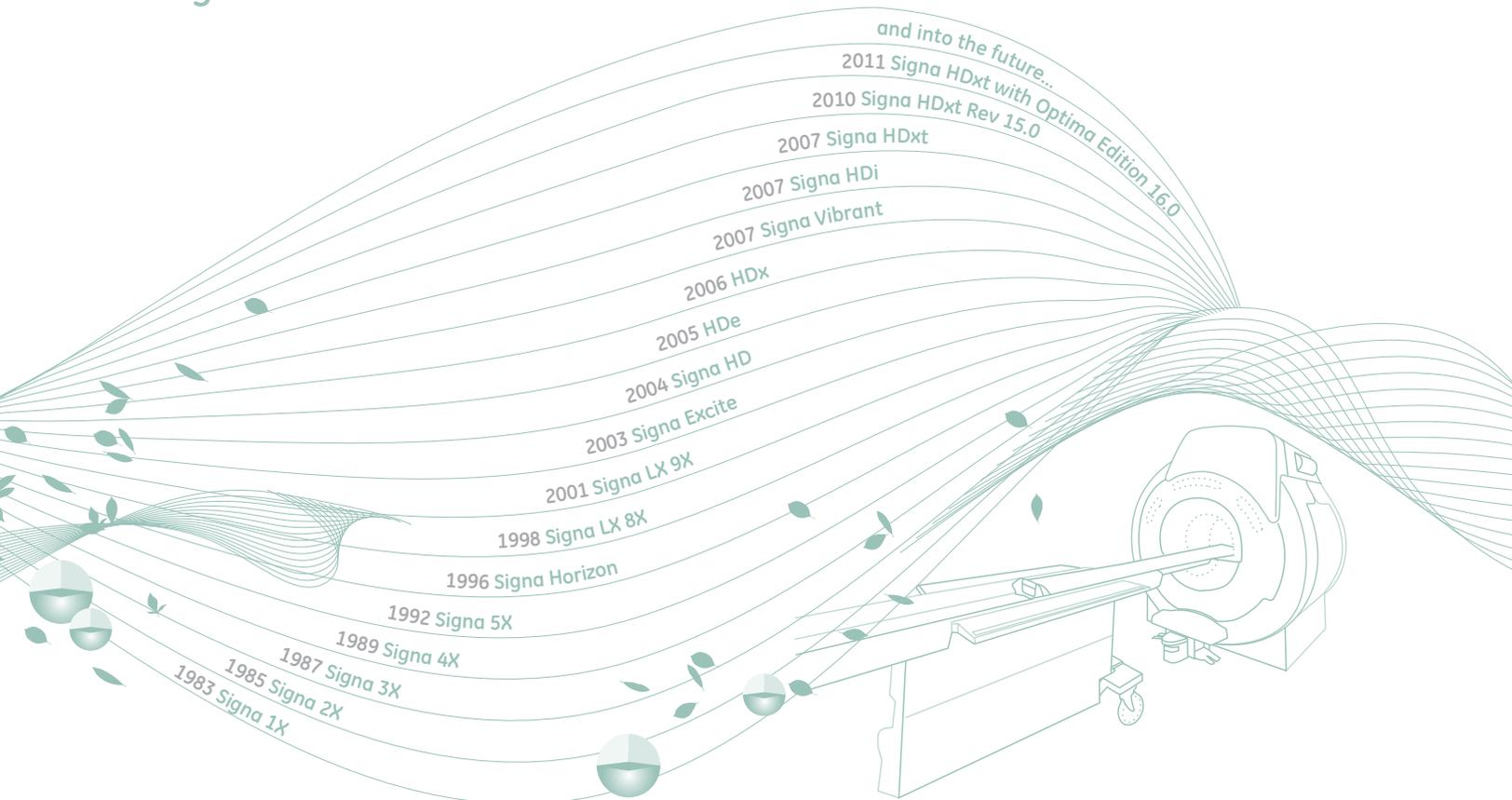
With platform upgradeability starting from any point, scalability is on your side.

Built for incorporation of the ContinuumPak, which are no-charge regular software releases with system improvements, and new software applications.

Easy-to-add breakthrough applications and new coil technology keep users technologically current in today's ever-changing and increasingly competitive market.



## The Signa Continuum



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## About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services helps our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our “healthymagination” vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access, and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at [www.gehealthcare.com](http://www.gehealthcare.com).

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imagination at work