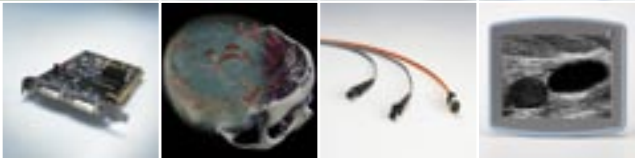


Custom Imaging Solutions



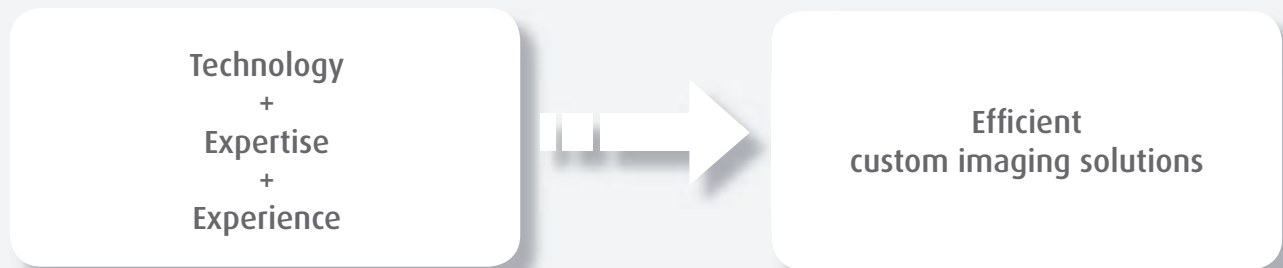
Flexible imaging solutions
for the medical OEM industry



Your partner for custom imaging solutions

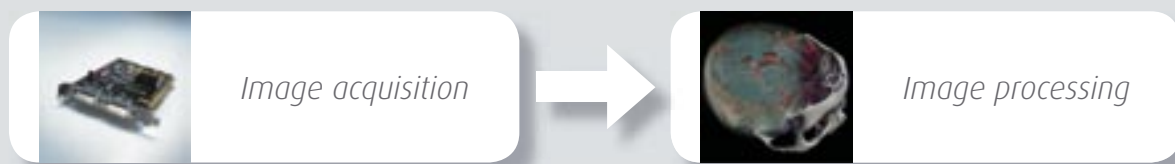
A leader in the medical imaging market for over 15 years, Barco provides high-performance diagnostic visualization technology for ultrasound, computed tomography, magnetic resonance imaging and x-ray applications. With its proven experience, in-depth imaging expertise and industry-leading technology, Barco is a preferred partner for reliable, innovative and **efficient custom imaging solutions**.

Building on your requirements, Barco partners with you to achieve your goals. This results in **low-risk solutions** and a **fast time-to-market**. That's exactly why industry-leading OEMs and medical professionals worldwide rely on Barco.



Expertise throughout the imaging chain

Barco has imaging expertise across a **broad spectrum of medical modalities** and throughout **the entire imaging chain**. Barco partners with you to provide solutions for image acquisition, image processing, image management and image display, all tailored to fit your specific needs.

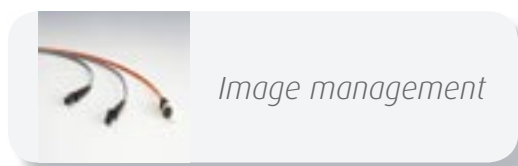


Areas of expertise:

- Low-noise analog to digital conversion
- Analog and digital filtering
- Noise reduction
- Edge enhancement
- Scaling
- X-ray dose control
- Continuous feedback and system control

Areas of expertise:

- Software-only & hardware-assisted 3D rendering
- Image enhancement
- Scan conversion & de-interlacing
- Motion detection
- Continuous scaling
- Video encoding/decoding
- Last image hold
- Advanced processing in FPGA or DSP
- Hardware acceleration



Areas of expertise:

- Real-time lossless/lossy compression
- DICOM-conformant data management
- Analog/digital video interfacing
- Wireless data communication
- Fiber optics



Areas of expertise:

- High-quality image display
- Continuous calibration
- Image stabilization
- Shielding
- Advanced overlay functionality



Image acquisition

Barco is proficient in a variety of advanced techniques and solutions for high-level image acquisition.

Low-noise image acquisition

Barco's know-how in the field of analog electronics for digital detector technology translates into first-class solutions for **low-noise image** acquisition. The use of state-of-the-art reprogrammable FPGA technology provides a high degree of **flexibility** and **upgradeability**. Access to the latest components and technology guarantees **ultra-fast** capturing and transmission of ever-growing datasets.

High-grade detector backlight technology

Extensive expertise in optics and electronics enables Barco to build backlights that unite **long lifetime** with **high uniformity**. As a result, detectors can be refreshed with great accuracy.

In the field:

Nearly 50% of the world's high-end x-ray detectors contain Barco's custom-made electronics. These **high-performance electronics** enable real-time cardiovascular imaging at resolutions up to 3000 x 2400 and refresh rates of 60 frames per second or more.

"We turned to Barco in 2001, because we encountered a specific need for one of our vascular products. Thanks to very efficient teamwork, a product definition was finalized within 1 month. 4 months later, we were integrating the first Barco boards with full functionality into our system. Another 3 months later, the product was already in series production."

Christophe Lepage, DL Image Processing Group Leader, GE Healthcare, France



Image processing

Barco develops advanced **image processing boards** and video processing **algorithms** for a variety of x-ray, ultrasound, CT, MR and endoscopy applications. In-house expertise also extends to **complete 3D visualization solutions** for high-grade MPR, MIP, volume rendering, etc.

World-leading 3D and 4D imaging expertise

Two of the leading ultrasound companies rely on Barco as their strategic partner for 3D imaging. Barco provides **innovative 3D and 4D platforms** that can be integrated into a variety of modalities within very short time frames. Depending on the functionality needed, Barco can either provide a complete 3D rendering library, a customized version of its widely-used VOXAR 3D™ ActiveX control or a custom-made visualization solution built from the ground up.

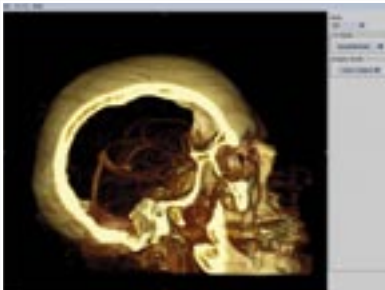
Effective filtering and enhancement

Barco's highly specialized imaging knowledge encompasses algorithms for **motion adaptive noise reduction**, a technology that allows for superior, artifact-free x-ray images while keeping x-ray doses low. Moreover, Barco masters complex convolution techniques to perform real-time, high-speed **edge enhancement** or other image processing functions.

Powerful hardware acceleration

To keep up with the ever-increasing datasets and enable real-time 3D applications, Barco's engineers have also specialized in high-level **GPU-based acceleration** techniques. Thanks to the use of several multipliers, more powerful systems can be developed, allowing users to freely and rapidly handle large amounts of information in real time.

In the field:



Based on its industry leading VOXAR 3D™ software package, Barco has built a sophisticated, custom 3D imaging solution for NeuroLogica's CERETOM™ mobile CT scanner. With Barco's specialized knowledge and high responsiveness, NeuroLogica was able to equip the CERETOM™ with proven 3D functionality and bring it to the market in record time.

"Throughout the development and integration phases of the CERETOM™, the Barco team worked with our engineers to customize the imaging software to the needs of the system. Their professionalism, flexibility and efficiency enabled us to bring the CERETOM™ scanner from concept to production in eighteen months!"

Bernard M. Gordon, CEO of NeuroLogica Corporation





Image management

With the ever-increasing volume of image data in today's medical applications, fast and efficient data exchange is crucial. This evolution of technology has made **image management** an important part of modality system design.

Real-time compression

Barco offers a full set of protocols for **lossless and lossy data compression**. Integrated into a larger system, these will ensure high-speed, real-time image transfer and memory-efficient storage.

DICOM expertise

Barco can draw on wide experience of developing, configuring and tuning **software to be DICOM-conform** and of assuring interoperability with multiple 3rd party DICOM-conformant devices. Experience with VOXAR 3D™, which inter-operates with all major CT/MR scanners and PACS systems, has resulted in in-depth knowledge and a technology-base with which to address the full range of DICOM-conformance challenges.

Optimized image transmission

Barco's modality solutions specialists are qualified to suggest, design and develop an **efficient interfacing and data transfer** solution for your application, combining maximum performance and reliability with minimal cost of ownership. Our expertise ranges from analog and digital interfacing to fiber optics and high-speed wireless data exchange.

In the field:

Barco has developed a customized Power Image Processing board for today's demanding ultrasound applications. This innovative board unites the functionality of frame grabbing, PC processing power, image processing and connectivity into a single physical platform. With this Power Image Processing board, real-time ultrasound video can be combined with advanced 3D reconstructions of the region of interest.



Image display

Many years of focused R&D have given Barco a unique, front running position in the medical imaging display industry. Thanks to an **unparalleled list of technical innovations**, Barco displays have become synonymous with accuracy, reliability and technological leadership.

Innovations for continuous, pixel-perfect images

Barco's portfolio of **technological innovations, all designed to improve the quality of the images displayed**, is unprecedented in the medical imaging industry. Barco's I-GUARD® technology was the first self-calibration system using a front-mounted sensor to continually adjust the luminance of the display, providing a higher degree of accuracy than backlight sensors. Barco's **Response Time Improvement System (RTIS)** reduces the smearing caused by slowly responding LCD panels. **Per Pixel Uniformity (PPU)**, another Barco first, increases the uniformity of the display luminance, a critical feature for demanding medical applications.

Flexible overlay function

Barco's modality imaging expertise is also apparent in its line of **high-performance display controllers**. They enable the interpretation of live grayscale x-ray images from high-resolution image acquisition devices in combination with graphics overlay, without degrading image quality.

High-efficiency shielding

A special, **high-efficiency shielding technique** allows Barco's display technology to be used in critical medical environments. This shielding eliminates stray RF radiation that could be detrimental to MRI imaging.

In the field:

The MR shielded display is just one example of Barco's imaging display expertise. The display was specifically designed for image and information display within the MR imaging room. It meets stringent specifications to prevent RF leakage which could cause imaging artifacts. Despite these tight tolerances, the product delivers high luminance and contrast levels to ensure superior image quality, and a wide viewing angle. In addition, the MR display comes in a compact, lightweight design, which greatly facilitates positioning and mounting.





Complementing your skills

Long-standing partnerships

With a collaborative, solution-oriented approach, Barco offers products and services that will maintain your focus, differentiate your brand and accelerate your time-to-market. Barco can guide you through the entire development cycle, from industrial design to manufacturing, testing and support. As such, Barco has developed long-standing partnerships with the world's leading modality vendors.

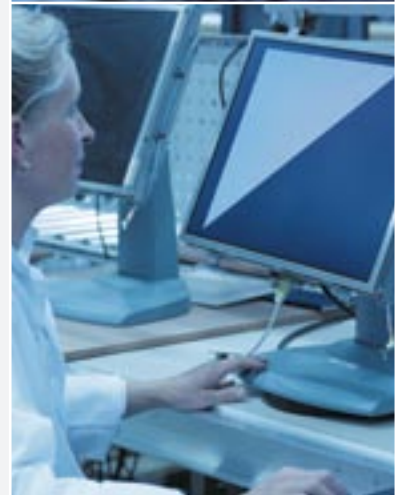
Life-cycle support and end-of-life management

In today's modality business, end-of-life management is becoming more and more important, as many technology suppliers are accelerating the migration of their products to more advanced technologies. Barco has been a solid OEM partner for over 15 years, supporting its customers with long-term maintenance support and high-grade end-of-life management for their solutions.

Strategic alliances

Through strategic alliances with carefully selected, technology-driven partners, Barco has access to the most advanced and suitable technologies. Barco's engineers have alliances with technical experts in various professional visualization markets, such as Avionics and Traffic Management. What's more, Barco's medical imaging specialists are supported by a global network of clinical advisors.

With production facilities all over the globe, we are able to keep costs under control to meet customer expectations.



Exceeding your expectations

Commitment to quality

Reliability is one of the foremost requirements of medical imaging products. Barco shares your concern for quality and applies the most stringent quality standards available throughout the entire development cycle. Barco's end-user products have global regulatory clearance in all target markets. As such, Barco has the in-house expertise to assist its OEM partners in obtaining regulatory clearance by providing the required information to cover Barco's components.

To guarantee product dependability, Barco performs a full suite of test procedures, including environmental and lifespan tests on all manufactured products. In-house testing facilities include ICT test beds, burn-in chambers, vibration tests, Highly Accelerated Lifetime Tests, and Highly Accelerated Stress Screening.

As a Six Sigma company, Barco continuously strives to improve its processes, resulting in better products and deliveries on time, on spec and on budget.

Kortrijk, Belgium



Duluth, Georgia, USA



Beaverton, Oregon, USA



Edinburgh, Scotland



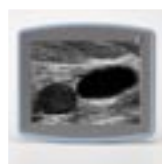
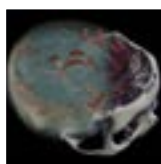
Tokyo, Japan



Global reach, local support

To ensure the optimum performance of your systems, Barco has developed a worldwide network for R&D, manufacturing and support. Barco's facilities and people have the expertise, capacity and resources to meet your local needs.

Barco Custom Imaging Solutions



A recognized technology leader with many years of experience in all areas of medical display technology, Barco has established a solid reputation in the medical imaging market with high-performance display technology and custom imaging solutions and services for a variety of medical modalities.

A unique merger of extensive in-house experience and high-standing competences makes Barco the leading choice for custom imaging projects in the medical industry. From idea to integration, Barco offers its customers all services required to complement their own skills.

Barco's expertise is supported by a worldwide network of research, development and support services. A global sales organization, with regional support people who understand your language and requirements, complements Barco's partnership approach.



In search of continuous improvement

Images by courtesy of Siemens Medical Solutions, ZONARE Medical Systems and GE Healthcare

M-P-MOS-1205

Technical specifications are subject to change without prior notice

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