

# TDRS-7101

## 3D reconstruction system



### Features:

- Barco high performance GPU board
- Driver optimized for medical imaging
- CT reconstruction Software Development Kit (SDK)
- Integration services to ensure a fast and easy integration process

### The Barco 3D reconstruction system

Cone-beam computed tomography (CBCT) systems are capable of providing images of high diagnostic quality, with relatively short scanning times and low radiation exposures. CBCT systems are being adopted rapidly for imaging in the head- and neck area, intra-operative imaging (C-arm), radiation oncology and other medical applications. Reconstruction speed however has been a major obstacle. Barco's 3D reconstruction system provides a high-performance, flexible and cost-effective solution that has the best price/performance ratio and life-cycle management in the industry.

### High Precision

- Full end-to-end floating point 32-bit precision (no "hybrid" method) for true image representation
- Error density as small as 0.5%
- Maximum Absolute Error (MaxAE) of 1HU

### Real-time image reconstruction without compromising reconstruction quality

- Implements the widely used and highly efficient Feldkamp Davis Kress (FDK) algorithm
- Real-time acquisition
- Supports asynchronous acquisition
- Reconstruction results are available immediately after the reconstruction
- Pre-weighting and filtering performed on CPU in parallel to back-projection on GPU – taking best advantage of each processor to give the highest possible throughput
- Takes advantage of rapid GPU development improvements

**BARCO**

Visibly yours

**A flexible solution**

- Given the highly programmable nature of a GPU solution, it is easy to implement new algorithms and to improve the existing ones
- GPU board can be simultaneously used for CT reconstruction, 3D rendering and Windows visualization
- Simple scalability, by just adding more boards to the system
- Optimized form factor solution using standard COTS hardware

**An integrated solution**

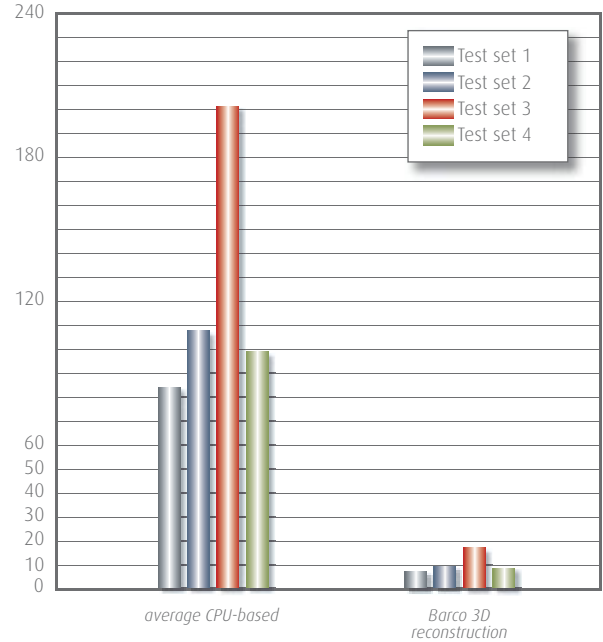
- Ease of integration using easy SDK
- Supports the latest standards (OpenGL v2.0, DirectX v10.0, PCI Express, DICOM standard for medical imaging)

**Barco, your B2B partner complementing your skills**

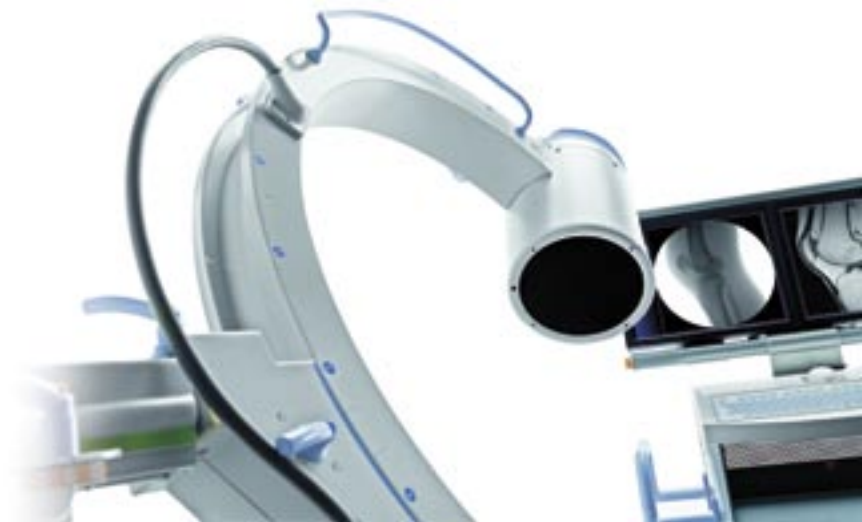
- Long-standing partnerships from industrial design to manufacturing, testing and support allow you to maintain your focus, differentiate your brand and accelerate your time-to-market
- Life-cycle support & end-of-life management: For over 15 years, Barco has been supporting its customers with long- term maintenance and end-of-life management
- Strategic alliances with:
  - Carefully selected, technology driven partners
  - Technical experts in various visualization markets
  - A global network of technical and clinical advisors



**Comparison of typical CPU-based reconstruction and Barco 3D reconstruction system**



Test set	Projection size	# Projections	Recon. Vol. Size
1	507 x 379	625	512 x 512 x 340
2	1024 x 768	625	512 x 512 x 340
3	800 x 672	1000	512 x 512 x 512
4	1024 x 1024	330	512 x 512 x 512



**Request more information**

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