BronnikovAlgorithms

Ultra-Fast Cone-Beam CT Reconstruction Software

The ultra-fast cone-beam CT (CBCT) reconstruction algorithm is the original invention and the know-how of Bronnikov Algorithms. The algorithm has an FBP-type implementation. The know-how includes the use of special mathematical algorithms for computing the cone-beam backprojection operator. The use of ultra-fast backprojection provides acceleration in ~100-200 times as compared with the standard approach.

The Software Product is distributed in the form of a Windows DLL which can be easily integrated into the Customer's environment. An USB dongle is used for the license protection.

Minimal system requirements:
- A Windows PC with a dual-core CPU, clock rate 2 GHz;
- Hard disk 7200 rpm;
- 2 GB RAM.

We provide:
- The highest image quality optimized for the given scanner configuration;
- The fastest cone-beam reconstruction software implementation on the market;
- Unlimited data and image size;
- Full DICOM compliancy;
- Any standard I/O formats are supported;
- Optional: adaptive metal artifact reduction, scatter correction, beam-hardening correction, region-of-interest reconstruction, offset detector, etc.;
- Automatic geometric calibration;
- Automatic marker-free stitching of 3D images;
- Complete software upgrade from 2D to 3D x-ray imaging;
- Panoramic image reconstruction.

Benchmarking (64-bit Windows):

Reconstruction of a 512x512x512 image from 360 projections of 512x512 pixels:

CPU (~2.6 GHz) :	Dual core	Quad core	Twin quad-core
Time :	**~12 sec**	**~6 sec**	**~3 sec**

Reconstruction of a 1024x1024x1024 image from 720 projections of 1024x1024 pixels:

CPU (~2.6 GHz) :	Quad core	Twin quad-core
Time :	~120 sec	~60 sec