Faster 3D X-ray data acquisition and superior imaging quality
for electronics failure analysis

ZEISS DeepRecon Pro

ZEISS DeepRecon Pro is an artificial intelligence (deep learning)-based reconstruction technology for 3D X-ray microscopy (XRM). Intended to image and analyze electronic products and components, DeepRecon Pro enables faster 3D X-ray scans while preserving ZEISS's revolutionary Resolution at a Distance (RaaD) and image quality advantages.

Up to 4X Faster Scans

Rapid structural and failure analysis (FA) aids fast product introductions and high customer satisfaction levels. Shrinking package interconnects, higher packing densities, and increasing package sizes result in smaller, more difficult-to-find defects and longer analysis times. DeepRecon Pro enables faster high-resolution, high-quality 3D X-ray image acquisition for workflows used in process development and quality control. Up to 4X faster throughput is possible by leveraging the ZEISS big-data library and deep learning training network models.

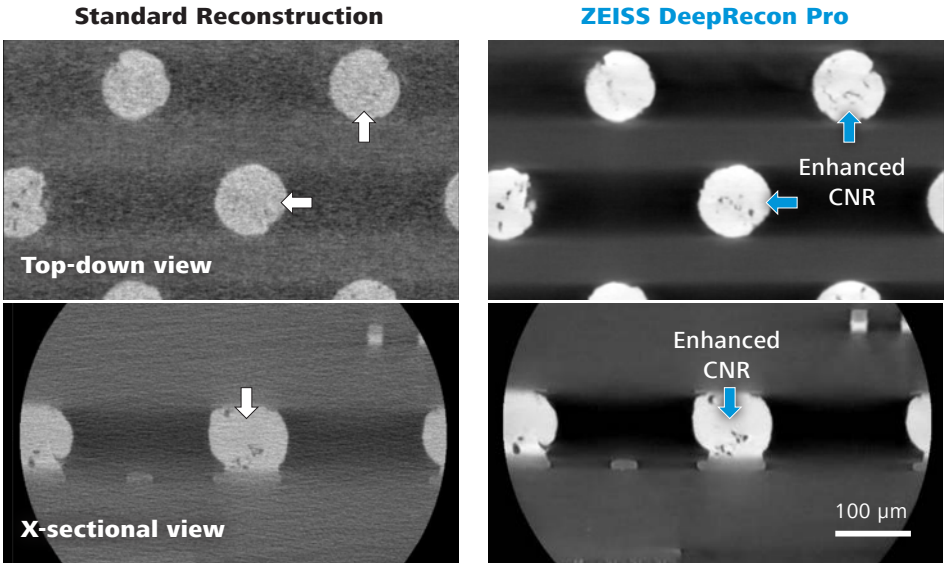
Faster time to results and the ability to increase sampling rates provide a new opportunity to scan larger fields of view (FOV) with high resolution for fault isolation applications.

Better Image Quality

High image contrast-to-noise ratio (CNR) and high resolution are needed to produce the highest quality images for improved visualization of defects and for small and low-contrast features. To achieve a higher CNR using standard reconstruction techniques, higher exposure times and/or a higher number of projections are generally required, which can significantly impact throughput. DeepRecon Pro offers a statistically improved CNR, providing superior image quality. DeepRecon Pro additionally reduces noise and aliasing imaging artifacts common in the traditional Feldkamp-Davis-Kress (FDK) reconstruction method.

Unlimited, User-trained Networks

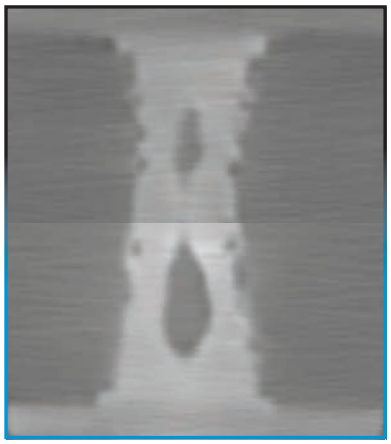
DeepRecon Pro is an option offered via the ZEISS Advanced Reconstruction Toolbox for ZEISS Xradia Versa X-ray microscopes and Context microCT instruments. The one-click network training solution is seamlessly integrated in the existing ZEISS reconstruction engine. Deep learning network models can be trained and generated by users, eliminating the need for a machine-learning expert. Users can build their own network model library to fit a broad range of repetitive or non-repetitive applications. Available for new or existing X-ray systems, DeepRecon Pro opens new 3D X-ray failure analysis workflow opportunities by AI-driven speed or image quality.



DeepRecon Pro for electronics failure analysis workflows: *Superior image quality for electronics packages*

Seeing beyond

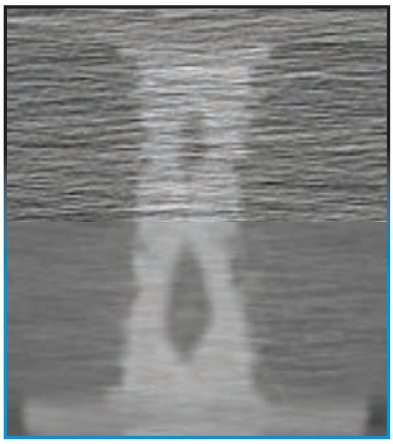
Standard Reconstruction



ZEISS DeepRecon Pro

5 hours
(3000 projections / 6 seconds)

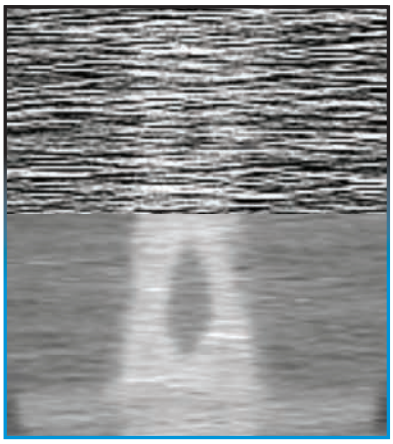
Standard Reconstruction



ZEISS DeepRecon Pro

40 minutes
(400 projections / 6 seconds)

Standard Reconstruction



ZEISS DeepRecon Pro

7 minutes
(400 projections / 1 second)

Smartphone package: *DeepRecon Pro enables tremendous improvement on data acquisition speed and image quality for both large and fine features.*

ZEISS continuously develops new solutions to solve critical challenges for semiconductor package analysis and FA applications. ZEISS offers unprecedented system extendibility with field conversion options and various upgrades like DeepRecon Pro to protect your investment.

ZEISS Xradia Versa XRM
with primary workstation
Standard FDK Reconstruction

ZEISS Xradia Context microCT
with primary workstation
Standard FDK Reconstruction

+

ZEISS DeepRecon Pro

Software Bundle

- DeepRecon Pro engine
- One-click network model training
- Manual Reconstruction
- XRM DataExplorer
- XRM 3DViewer

High-performance Offline Workstation

- Dual 10-core processor
- 512GB RAM
- Windows 10, 64-bit O/S
- Dual professional-class 3D GPU
- 30” monitor

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