CONCERTED SOLUTIONS

ABOT Systems®

ABOT Systems for Scan-to-BIM

Developers are increasingly adopting BIM to enhance project performance during construction and more importantly for asset management throughout its lifecycle. This trend has also encouraged asset owners and managers to apply the same advantages to existing assets that were not executed in BIM. Creating a digital-twin through converting point clouds to a 3D BIM model is the solution for already existing structures. The task of creating a BIM model from data intensive laser scans is a very daunting task that requires experience and skills supported by efficient computers. ABOT machines can improve your Point Cloud to BIM workflow by 25% to 35%.

HOW DO WE INCREASE YOUR PERFORMACE?

First, we understand what hardware your applications need

Hardware Utilization Scenarios in a Scan to BIM work flow

When you import the Point Cloud (eg to TrueView, Scene or Recap)

It normally utilizes hard drives and multiple processor cores

When you process the Point Cloud (PC)

It uses RAM memory and multiple processor cores

When you combine PC files (Calculations)

uses multiple processor cores and ram memory

When you visualize

It uses only the GPU

When you Export the File

It utilizes hard drives and the processor

When you create BIM Models

It utilizes a single processor core

Second, we choose the correct hardware for your application

When hardware companies look to increase performance of their CPU designs, they have three ways to do so. They can

1 increase the CPU core frequency (going from 3GHz to 4GHz, for example),

2 increase the instructions Per Clock (architectural enhancements that allow a CPU to get more done in the same amount of time), or

3 add CPU cores (four cores, six cores, eight cores, and so on).

Of these three methods, adding additional cores will only show a performance advantage when utilizing heavily-threaded applications, like those used to render an image. **(This is where it is important to have a good understanding of what kind of performance your application needs and the hardware it uses).**

Unlike BIM software, Point Cloud data relies on multiple cores (CPU & GPU). The data heavy files require fast transfer speeds between processor and the hard drive, making the hard drive and its transfer speed one of the bottlenecks to achieve peak performance.

Point cloud Workstation recommendation

Minimum of 8 real processor cores

Good amount of processor cache memory

At least 32 GB RAM Memory

SSD as Hard Drive with a compatible motherboard

GPU with fast bus interface, high GPU cores, GPU memory >= 6GB

Note that in most CAD based applications, Point Cloud RGB information is multi-threaded while monochrome point cloud data is single threaded. This also effects the choice of the GPU card.

Finally, apply Application Based Optimization and Tuning

AB

The **Application Based** techniques inherent in ABOT Systems use dynamic optimization and tuning, separately or in combination, to increase the performance of professional applications. They are specific to the combination of applications used and take into account each application's hardware requirements.

O

The **Optimization** process that gives applications better overall performance at run time, without significantly impacting production time can:

- Reduce the number of instructions your application executes to perform critical operations.
- Make optimal use of the processor architecture.

Improve memory subsystem usage.

- Exploit the ability of the architecture to handle large amounts of shared memory parallelization.

T

Tuning adjusts the characteristics of applications to improve performance, or to target specific execution environments. Even at low optimization levels, tuning for the applications can have a positive impact on performance. With tuning, the ABOT systems can:

- Select more efficient machine instructions.
- Generate instruction sequences that are more relevant to your application.

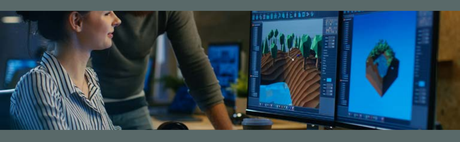
We apply Application Based Optimization and Tuning to the individual machines to ensure they achieve breakthrough performance on the applications they are intended for

HOW DOES ABOT COMPARE ?

All ABOT configurations are stress tested under load to ensure hardware compatibility in order to offer peak performance.
We pitted a desktop PC with identical specifications against an ABOT workstation in a typical Point Cloud to BIM workflow to compare their performance. Here is a summary of how they compare:

Task	Performance
Indexing process of a complex 11 GB point cloud file	ABOT is 2.5 times faster
Multiple application processing Revit 2018, Navisworks, Recap	ABOT is 34% faster
Multitasking Transferring / Copying	ABOT is 28% faster
Rendering of Navisworks Models	ABOT is 34% faster
Navigating through linked Point Clouds	ABOT enables seamless navigation without lag

ABOT Systems offer a integrated hardware and software solution which is custom-built specifically to match the application workflow, thereby guaranteeing peak performance and fluid compatibility.



Modelers experience 35% enhanced performance

SOFTWARE-HARDWARE OPTIMIZATION

Application based Optimization and Tuning (ABOT) is a methodology of integrating Hardware and software together to avail and utilize the hardware component resources to perform at optimum levels.

ABOT systems is a uniquely developed software technology to work on computer hardware where in the system parameters will be auto tuned to enable the best performance of the professional software application.
The Primary Objective of an Application Based Optimization and Tuning technology is to bring software and hardware performance to an optimum level and increase the average performance of the computer hardware, thereby increasing software productivity up to %35 in an average working environment.

Software platforms ABOT Solutions Addresses:

AUTOCAD · 3DS MAX · MAYA · AUTODESK INVENTOR · AUTODESK NAVISWORKS · AUTODESK REVIT · Adobe Creative Cloud · CINEMA 4D · V-ray · SOLIDWORKS · CATIA · KeyShot

Target Industries:

- Architecture, Engineering and Construction
- Manufacturing and Product Design
- Media and Entertainment
- AI, Deep Learning, Simulation and Analysis

www.abotsystems.com

T. +971-4-3289986
E. info@concertedsolutions.ae
www.concertedsolutions.ae

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