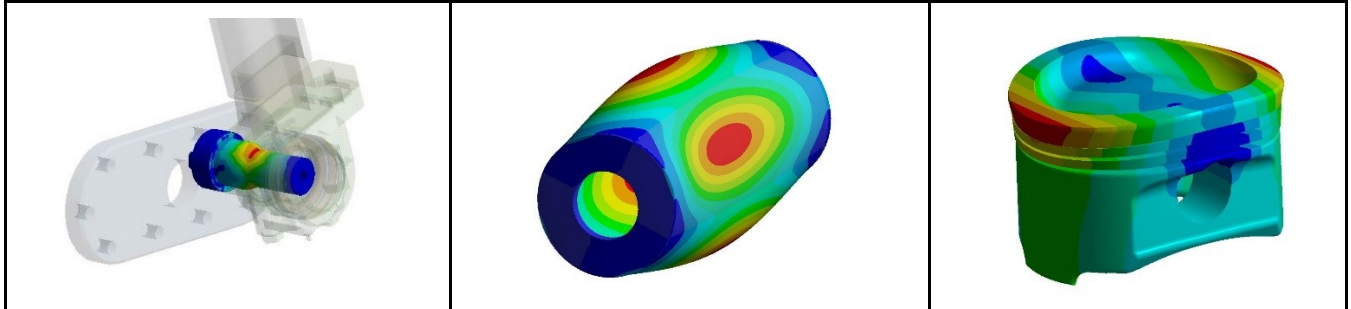# MIB Engineers

FEA HPC Computing Capabilities

When you need to perform analysis on complicated components and assemblies talk to MIB Engineers.

MIB Engineers use sophisticated software tools such as ANSYS and High performance computers (HPCs) that can solve the mathematical models quickly and accurately. MIB performs FEA analysis that delivers customer results in a shorter time. Running larger, higher-fidelity models helps customers improve product quality and identify structural risks.

MIB Engineers employs computer platforms that perform with 60% or more improvement in speed over the prior Intel generations, and thus are a powerhouse for a majority of workflows. MIB considers HPCs to be an essential component of FEA analysis as a strategic technology for advanced engineering simulations.
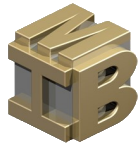
Computer Specifications:

MIB Engineers now uses HPCs to carry out the majority of FEA studies. The computers include the latest Intel CPU technology and Graphics Processor power to enable detailed and accurate reports to be delivered to our customers.

Our machine specifications utilize the following features:

- Memory capabilities of at least 64Gb expandable up to 1Tb
- Dual Intel® Xeon® Processors provide exceptional performance.
- High resolution 2560x1440 video graphics provide detailed images.
- HPC license packs allow expanded use of all physical CPU cores.
- ANSYS v15 features improved meshing and solving performance.

Typically this type of machine performs well above the rating of an engineering workstation. The increased memory capacity of the Xeon® processor product family allows even the largest of workloads to be handled in-core, significantly improving run times. This allows MIB Engineers to run larger, higher fidelity models in more iterations within a set time and cost constraint to improve product quality and enable faster project turnaround.

MIB Engineers

FEA HPC Computing Capabilities (cont'd)
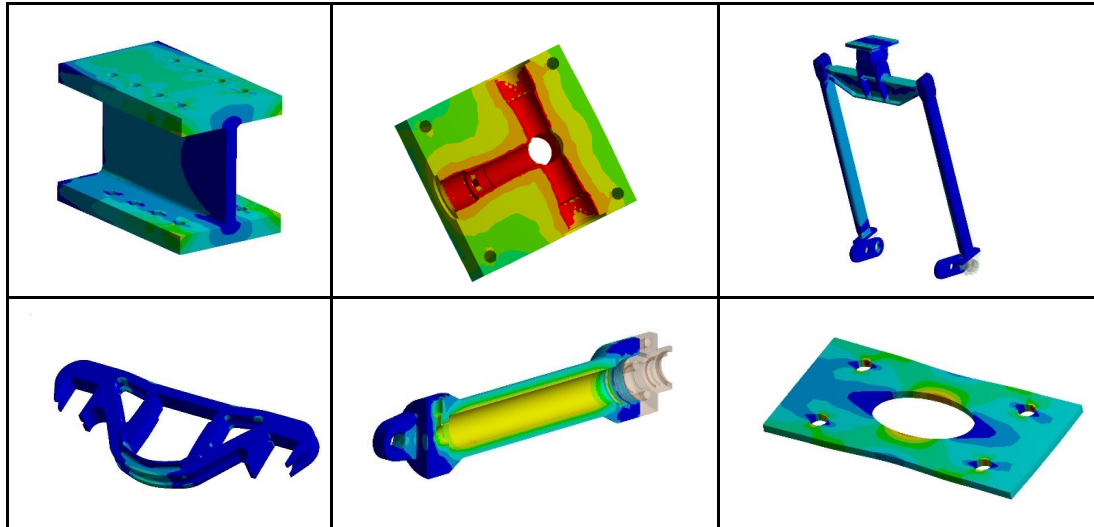
Benchmarks

MIB Engineers has conducted testing of various structural models and has verified that these specifications give significant improvements in performance and solution fidelity. The resulting performance increase can be compared with a typical single die workstation.

Computer Specification	Dual Xeon CPU	Quad Pentium CPU
Number of Physical Cores	16	4
Memory	64Gb	16Gb
Video Ram	3 Gb	1 Gb
Video Resolution	3.68×10^6 pixels	2.304×10^6 pixels
Ansys version	15.0	14.5.7
Maximum Practical number of elements	5 million	500,000 thousand
Maximum stated elements	800 million	300 million
Mesh time of ½ million elements	4 minutes*	20 minutes*

*-typical values using a model with 177 components

Conclusions

MIB Engineers FEA services can offer the increased performance and fidelity that industry increasingly demands through the use of high specification HPC hardware and state of the art software. This combination enables our customers to catch structural problems early and mitigate project risks.