New Features and Enhancements to the Commercial EM Code XF7

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XF7 simplifies the analysis of complex EM problems and leads the market in FDTD-based modeling and simulation. Remcom's products are used for antenna design, bio/EM effects, MRI, microwave circuits, RFID, military and defense applications, EMC/EMI, and more. XF7 is under constant development in order to address the evolving needs of design engineers.

This presentation will discuss a selection of recent new features and enhancements to XF7 including:

- The combination of XStream GPU Acceleration and MPI. XStream GPU Acceleration tremendously improves EM simulation performance by leveraging powerful CUDA-capable GPUs from NVIDIA. Combining XStream with MPI allows simulations to be divided amongst GPUs across multiple computers in a cluster. This can result in even greater speed improvements and enable much larger problems to be solved.

- Support for problems exceeding two billion unknowns.

- New XStream GPU Acceleration capabilities. The latest enhancements to XStream include support for Debye/Drude dispersive materials, magnetized ferrite materials, thin wire materials and periodic boundary conditions.

- External Queue Integration (EQI). EQI allows XF7 to interact with external scheduling systems in order to efficiently use the available resources of a super computer or compute farm.

- Circuit co-simulation. Integration with a circuit solver provides an easy mechanism for including complicated circuit topologies.

- Temperature rise. This new module permits the calculation of temperature rise in tissues due to electromagnetic radiation.

- New output types including dissipated power density plots and active VSWR.

- New CAD modeling features including the ability to bend, stretch and twist solid objects as well as the ability to project a sheet body onto a solid object.