NVIDIA® Tesla™ C1060 Computing card. Size of a cubic FDTD problem domain has been swept and the number of million cells per second processed is calculated as a measure of the performance of the CUDA program. The result of the analysis is shown in Fig. 3. It can be observed that the code processes about 450 million cells per second on the average.

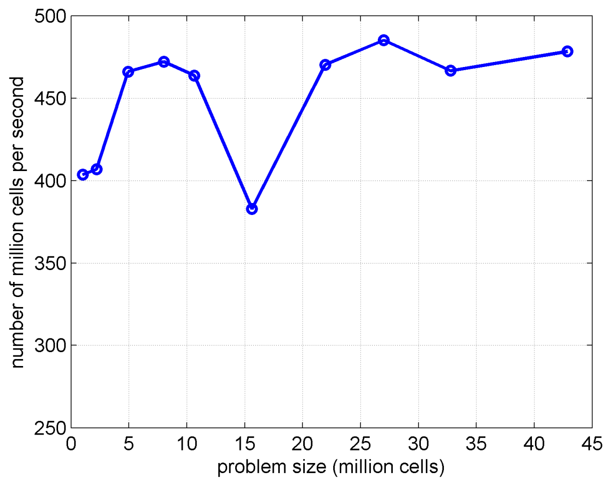

Figure 3. FDTD algorithm speed versus problem size.

References

[1] Buck, *Brook Spec v0.2* Stanford, CT: Stanford Univ. Press, 2003.

[2] M. J. Inman and A. Z. Elsherbeni, “Programming Video Cards for Computational Electromagnetics Applications,” *IEEE Antennas and Propagation Magazine*, vol. 47, no. 6, pp. 71–78, December 2005.

[3] NVIDIA CUDA ZONE, http://www.nvidia.com/object/cuda_home.html.

[4] N. Takada, T. Shimobaba, N. Masuda, and T. Ito, “High-speed FDTD Simulation Algorithm for GPU with Compute Unified Device Architecture,” *IEEE International Symposium on Antennas & Propagation & USNC/URSI National Radio Science Meeting*, *2009*, North Charleston, SC, United States, p. 4, 2009.

[5] Valcarce, G. De La Roche, A. Jüttner, D. López-Pérez, and J. Zhang,“Applying FDTD to the coverage prediction of WiMAX femtocells,” *EURASIP Journal on Wireless Communications and Networking*, February 2009.

[6] P. Sypek, A. Dziekonski, and M. Mrozowski, “How to Render FDTD Computations More Effective Using a Graphics Accelerator,” *IEEE Transactions on Magnetics*, vol. 45, no. 3, pp. 1324–1327, 2009.

[7] Ong, M. Weldon, D. Cyca, and M. Okoniewski, “Acceleration of Large-Scale FDTD Simulations on High Performance GPU Clusters,” *2009 IEEE International Symposium on Antennas & Propagation & USNC/URSI National Radio Science Meeting*, North Charleston, SC, United states, 2009.

[8] Atef Elsherbeni and Veysel Demir, “The Finite Difference Time Domain Method for Electromagnetics: With MATLAB Simulations,” SciTech Publishing, 2009.