

عنوان مقاله:

Future of Using FPGAs in Internet of Things Applications

محل انتشار:

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خلاصه مقاله:

Nowadays, with the advancement of technology and population growth, the dramatic increase in energy consumption and the number of powergrid subscribers has created a large amount of new data. Naturally, managing and securing this data is essential. Therefore, optimal management and real-time decision based on this data leads to increased productivity and improved overall performance of systems and, thus, the power grid. On the other hand, maintaining the security of this data is very important for various reasons. This data describes subscribers' behavior and habits, and important decisions of control centers are made through this data. To this end, multiple concepts and systems, such as the Internet of Things (IoT), are used to provide the infrastructure needed for these systems with better quality. To use these systems, like providing smart meters to subscribers, different hardware and software platforms with different conditions and adaptations are required. One of these options is using the field programmable gate array (FPGA). These processors are a good option to use in these systems for various reasons, which are also discussed in this article. In this article, we first introduce FPGAs in brief, describe their internal structure, and describe their advantages and disadvantages over other options like microcontrollers. In the next section, we review several IoT projects implemented by FPGAs. Finally, we summarize and predict the position of FPGAs in current and future IoT applications.

کلمات کلیدی:

Internet of Things, FPGA, Information Security, Smart Meters

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