

Development of vehicle communication system using FPGA

ABSTRACT

Embedded systems are taking on more complicated tasks as the processors involved become more powerful. The embedded systems have been widely used in many areas such as in industries, automotives, medical imaging, communications, speech recognition, computer vision and mobile communication. The complexity requirements in hardware and software nowadays need a flexibility system for further enhancement in any design without adding new hardware. Therefore, any changes in the design system will affect the processor that need to be changed. To overcome this problem, a System On Programmable Chip (SOPC) has been designed and developed using Field Programmable Gate Array (FPGA). A softcore processor, Nios II 32-bit RISC, which is the microprocessor core was utilized in FPGA system together with the embedded operating system (OS), Clinux. In this paper, programming example of rotating a DC motor and a web server are explained and demonstrated through wireless LAN.

Keyword: Embedded systems; Vehicle communication; FPGA