Development of the Electronic Circuit in High Frequency SLR Based on FPGA

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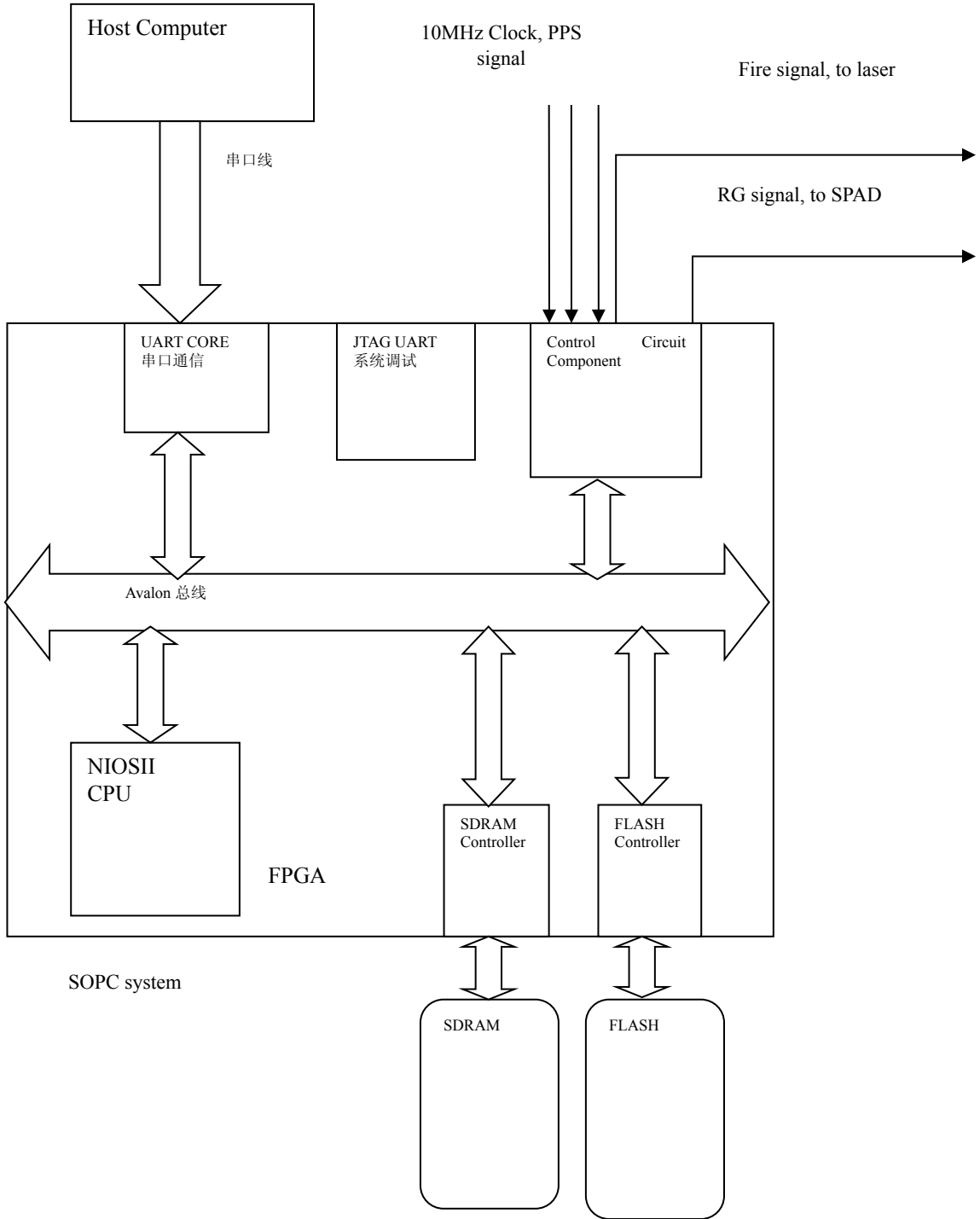
Abstract

- Increase of the laser firing frequency will significant improve the performance of Satellite Laser Ranging (SLR) system. To meet the requirement of high frequency SLR, an implementation of control circuit in single FPGA chip was designed and developed. SOPC (System On Programmable Chip) system was proposed to solve these problems. To realize the system, a control circuit custom component was designed and simulated. Then, the component was integrated into a SOPC system. Cooperated with software, the circuit has the ability to control the SLR system running at high frequency. Finally, the system was simulated in the Quartus software and NIOS IDE provided by Altera and implemented in an Altera EP1S10 development kit.



Hardware block diagram

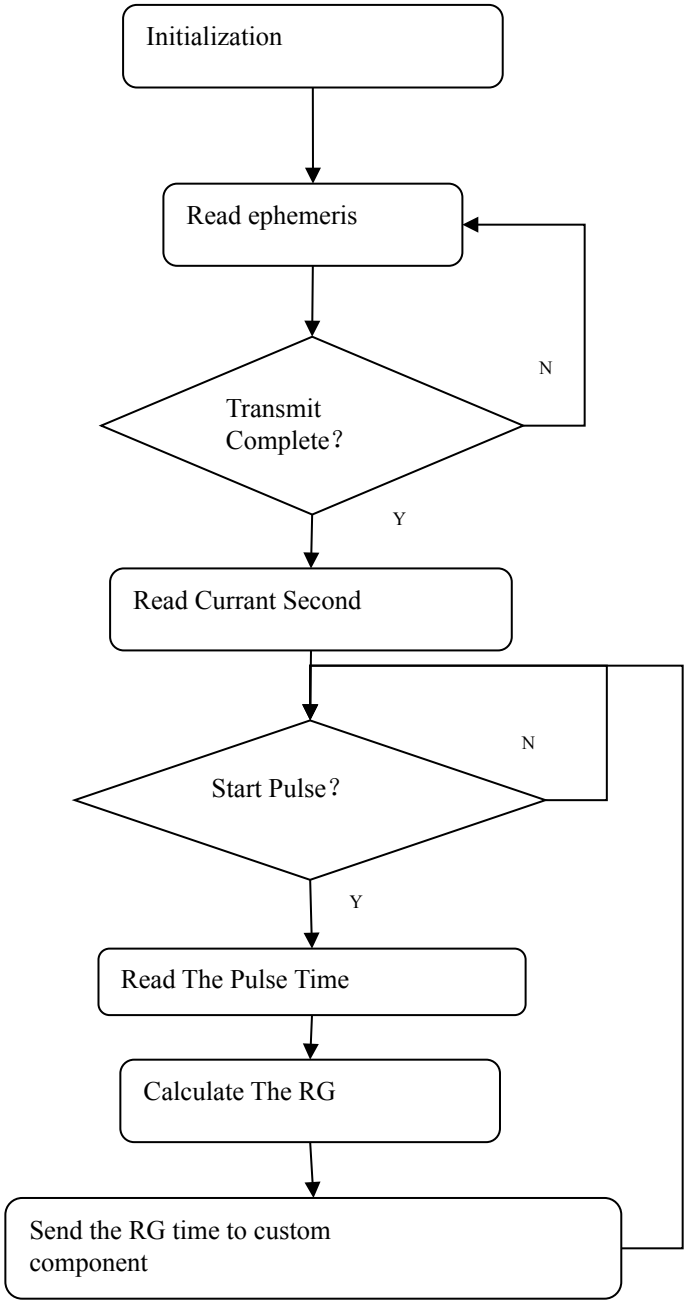


Figure 2 Software in embed system