
Integrated Upgrades of Control System for TROS

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Abstract

The mobile SLR system TROS has operated for several years. Operations are routine, but the system is not without problems. To solve these problems, we are planning an upgrade to some of the TROS subsystems. These upgrades will enhance the signal return rate, improve the tracking precision and system reliability, provide convenient operational conditions for mobile observation, and relieve the labor intensive nature of the operations and maintenance.

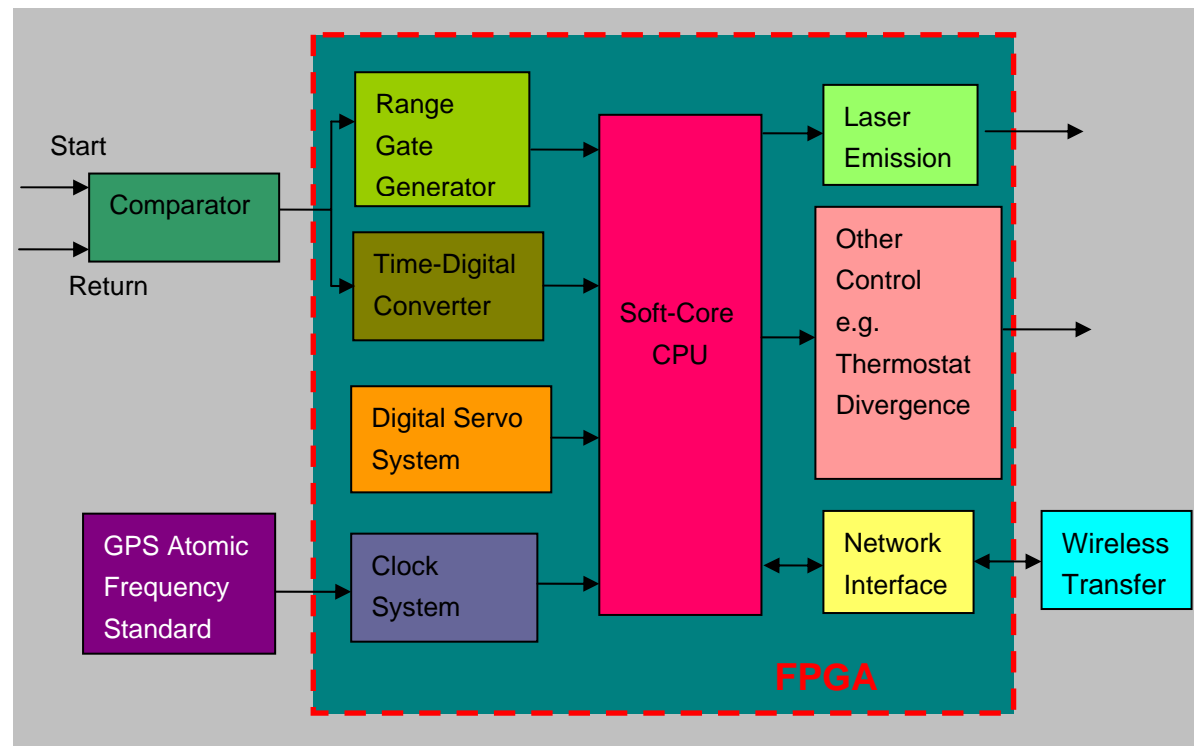


Figure 1. The principle diagram of the control part

The new version of TROS will possess the following properties:

1. The electronic components will be integrated into one subsystem, including event counter, GPS locked clock, range gate generator, servo system, and software. This will enhance system reliability. The principle diagram of this part is shown in Figure 1.

2. The control system will provide control for KHz ranging. This will help in target acquisition and tracking and enhance the normal point ranging precision.
3. The integrated event counter will use the time to digital converter to measure the interval in the FPGA.
4. The new electronics will generate the signal of angular position and speed by a photoelectric position encoder for implementing a full digital servo system. This will enhance tracking precision.
5. Operators will be able to run the software to control the system by web browser over wireless link.