DESIGN AND IMPLEMENTATION OF STEPPER MOTOR CONTROL OF THE LINAC HIGH POWER RF SYSTEM BASED ON FPGA

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The Siam Photon Source (SPS)
1. Thermionic Electron Gun
2. 40–MeV Linac
3. Booster Synchrotron (1.0 GeV)
4. Storage Ring (1.2 GeV)
RF System of SLRI’s Linac

Linac RF distribution diagram

Phase Shifter/Amplitude Attenuator

Front Panel Display (Motor Position)
Hardware

Commercial Stepper Motors & Electronic Controllers

FPGA Baseboard & FMC Debug Card Daughter board

Digital Circuits for GUI interface and motor pulses and direction control
The accuracy of the position control is within 0.4 % error.

Digital logic circuits help achieve appropriate control action.

Design is good for the system with a lot of signals between the FPGA and electronic motor controllers (7 stepper motors).
Thank you for your attention!

For details, please see THP08

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