ET-FPGA-A
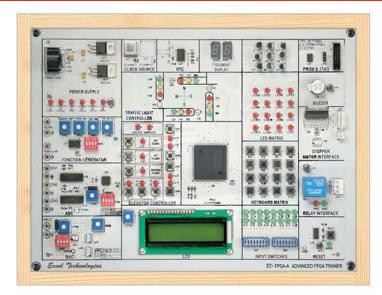
FPFA Trainer Advance

FEATURES

• FPGA-A prototype board provides easy to use development platform
• Useful to physically verify simple digital designs using FPGA
• A board that uses a SPARTAN-3 FPGA series device
• On board Function Generator
• Modular organization of circuit functions

SPECIFICATIONS

Device
• FPGA XC3S400-PQ208

Onboard function generator
• Provision for Square and Triangular wave generation
• Frequency variable from 40 to 100 KHz with provision of fine and coarse selection for both square and triangular wave
• Amplitude variable from 0 to 2Vp-p for both square and triangular wave
• Offset adjustment for triangular wave

Motor interface
• Stepper motor interface using 12-VDC, 200 steps / revolutions motor
• 12V DC, DC motor interfaced using unpolarized connection so that it can be reversed

Relay interface
• One NO and NC contacts are provided using 12-VDC relay

RTC interface
• Real time clock interface using I2C bus

Buzzer interface

Analog inputs
• ADC AD7938 (1.5MSPS and 12-bit) with 4 channels used
• Thermistor interface is given to ADC channel 4
• Anti aliasing filter at the input of ADC (channel 1) with provision for time constant adjustment

Analog output
• DAC TLV 5619 (12-bit, 100ns conversion time)
• Reconstruction filter at the output DAC with provision for time constant adjustment

Onboard application
• Traffic light controller
• Elevator controller

User interface
• 16 input switches
• 4X4 LED matrix
• 4 X 4 matrix keyboard
• Two 7- segment displays
• 16 X 2 character LCD display

FPGA configuration through : USB JTAG

Clock oscillator : 4MHz

EXPERIMENTS

• Interfacing ADC-DAC
• Stepper motor, DC motor, Relay interface, Buzzer interface, seven segment display & LCD interface
• RTC interface using I2C bus
• Implementation of multiplexer, decoder, encoder, flip flop
• 2-bit comparator, binary to gray code converter, adder and subtractor
• Design of arithmetic logic unit
• Generating ramp waveform using DAC
• Traffic light controller
• Two floor elevator controller
• Temperature sensing using ADC-DAC interfacing and display on LCD
• Application using LED matrix
• PRBS generator

Note: JTAG to USB Programming Cable for Xilinx has to be purchased separately.

Note : Specifications are subject to change due to our constant efforts for Improvement. Please refer to quotation for final specifications.

Excel Technologies

C-92, Sector - 63, Noida, Uttar Pradesh, India -201301 Mob : -08860106750
www.exceltechnologiesonline.in

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