



FPGA Programmer Board Document

Contents of package

1. FPGA Board EB-030-00-1
2. ELSAM CD
3. Document EB03040 "FPGA Programmer Document"
4. Document "Warranty"

Summary – FPGA Board Description

This FPGA daughter board sits on top of the existing E-blocks CPLD programming board (EB020) to provide 7 full E-blocks ports which can interface to other E-blocks: from simple LED and switch boards through to more complex boards like internet interfaces, IrDA communication systems, internet and Bluetooth boards. The FPGA device used is Altera's EP1C3 FPGA, which contains 3000 Logic Elements. An alternative 6K Logic Element device is also available. The FPGA is programmed using Altera's Quartus II web edition software and full course notes are available. The FPGA daughter board itself can be removed from the CPLD board to provide a leaded component that can be used in your own projects (serial memory programmer required). This solves the difficult issue of handling FPGA packages that are difficult to solder.

Features

- E-blocks compatible
- Low cost
- Used as an FPGA development board
- Can be used as a component for further project work
- Full suite of programming software
- 1.5V core voltage and 3.3V I/O voltage – made available via screw terminals
- Socket for reprogrammable configuration (EPC2)
- Programmable 'reset' button
- JTAG interface connector

FPGA Board Layout

1. Altera Cyclone® FPGA
2. 1.5V core voltage regulation circuit
3. 3.3V I/O voltage regulation circuit
4. Configuration device socket
5. Screw terminal (3.3V and GND)
6. Programmable 'reset' pushbutton
7. Header sockets – for connection to CPLD board
8. JTAG header extension pins
9. Configuration selection header

Where to find more information

For full up-to-date datasheets, documentation, F.A.Q.s and software updates please visit www.matrixmultimedia.com/eblocks

Using the following user name and password

User name: eblocks

Password: halifax

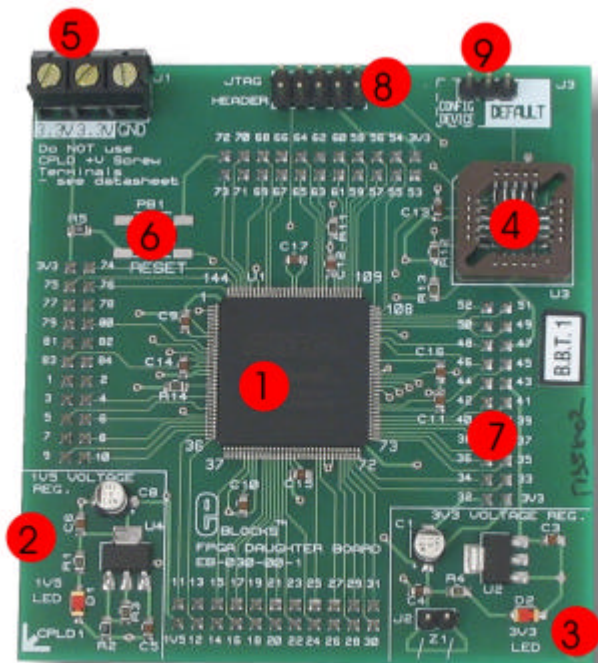
You will now have access to up-to-date information that you require.

Quartus II Web Edition Software

Altera® Quartus II software can be downloaded from the Altera® website at:

www.altera.com

Click on "Download" and follow the links to "Quartus II Web Edition"



Expansion bus

The following table shows the pin connections on the 9-way D-type ports. This should be used for correctly setting the Pin location in the Quartus software.

Pin Comparison Chart

CPLD1 D-type pin number	FPGA pin number
1	IO 025
2	IO 028
3	IO 031
4	IO 032
5	IO 033
6	IO 034
7	IO 035
8	IO 036
9	GND

CPLD4 D-type pin number	FPGA pin number
1	IO 073
2	IO 074
3	IO 075
4	IO 076
5	IO 077
6	IO 078
7	IO 079
8	IO 082
9	GND

CPLD7 D-type pin number	FPGA pin number
1	IO 133
2	IO 134
3	IO 139
4	IO 140
5	IO 141
6	IO 142
7	IO 143
8	IO 144
9	GND

CPLD2 D-type pin number	FPGA pin number
1	IO 042
2	IO 047
3	IO 048
4	IO 049
5	IO 050
6	IO 051
7	IO 052
8	IO 053
9	GND

CPLD5 D-type pin number	FPGA pin number
1	IO 099
2	IO 100
3	IO 103
4	IO 104
5	IO 105
6	IO 106
7	IO 107
8	IO 108
9	GND

CPLD3 D-type pin number	EPM7128 pin number
1	IO 061
2	IO 062
3	IO 067
4	IO 068
5	IO 069
6	IO 070
7	IO 071
8	IO 072
9	GND

CPLD6 D-type pin number	FPGA pin number
1	IO 110
2	IO 111
3	IO 112
4	IO 113
5	IO 114
6	IO 119
7	IO 120
8	IO 121
9	GND

Other important pins

Important Pins	FPGA pin number
Programmable reset	IO 002
Clock input	Pin 16
Clock input	Pin 17
Clock input	Pin 92
Clock input	Pin 93
Clock output	IO 012
TDO	Pin 90
TMS	Pin 89
TDI	Pin 95
TCK	Pin 88

IMPORTANT

Never power “Downstream” E-Blocks using the Vout supply of the CPLD Board.

Always use the 3.3V from the screw terminals of the FPGA board.