

RTAX-S/SL Prototyping Using Flash Devices

Olga Melnikova
Aldec, Inc.

MAFA, November 2007

Agenda

- Aldec RTAX-S/SL prototyping adaptor
- Advantages
- A3P1000-CQ352 & A3PE1500-CQ352 adaptor description
- Adaptor configuration table, RTAX2000 and RTAX4000 support
- Availability and schedule

RTAX-S/SL Prototyping

- RTAX-S/SL devices are one-time-programmable and if a small mistake is made, a new chip is required
- Socket + AX Approach
Good solution, but several design iterations could require an undetermined amount of Actel AX commercial chips to lock the design
- The potential risk for using an infinite amount of AX devices could add to the overall project cost and impact the budget

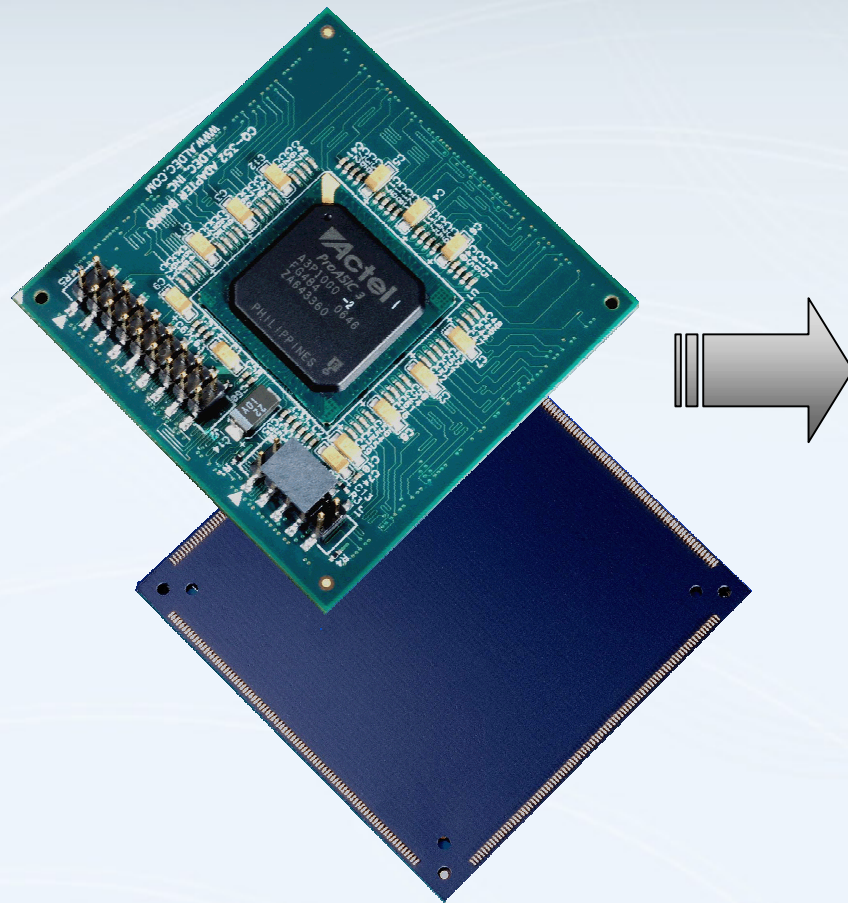
Reprogrammable Solution

One solution to overcome the RTAX-S/SL prototyping challenges is based on Actel ProASIC3 reprogrammable FPGA

1. Ability to prototype RTAX-S/SL designs using Actel Flash ProASIC3 family chips
2. Adaptor board is footprint-compatible with the final RTAX-S/SL device
3. Programming connector (JTAG) on the adaptor board allows reprogramming of the device on-the-fly without detaching the adaptor from the target PCB
4. EDIF Netlist converter allows to migrate from RTAX-S/SL to ProASIC3 easily (primitives and memories)
5. Design efficiency is achieved with savings in time and money

RTAX-S/SL Prototyping Adaptor

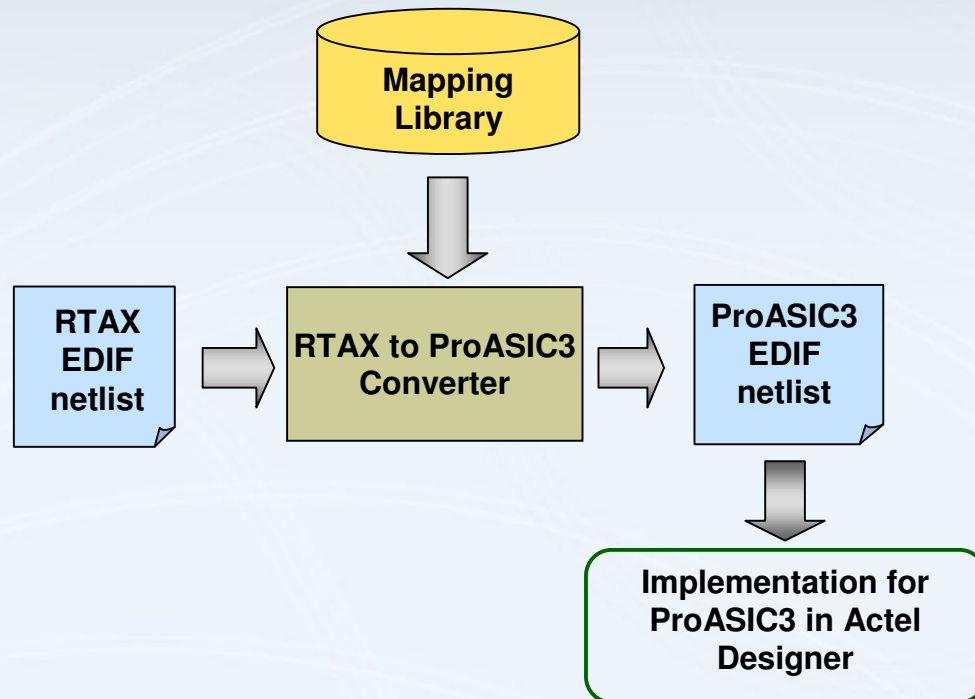
Prototyping Adaptor



Description:

- The adaptor is a prototyping tool that maps the footprint of an Actel ProASIC3/ProASIC3E device on the top to the footprint of an Actel antifuse RTAX-S/SL device on the bottom
- Using the adaptor, designs targeted for production in an RTAX-S/SL FPGAs can be prototyped using the reprogrammable ProASIC3 family device
- The programmer can be connected directly to the adaptor for programming the ProASIC3/3E device on the top
- The adaptor should be soldered directly onto the system PCB. The ProASIC3/3E device on the top then can be programmed

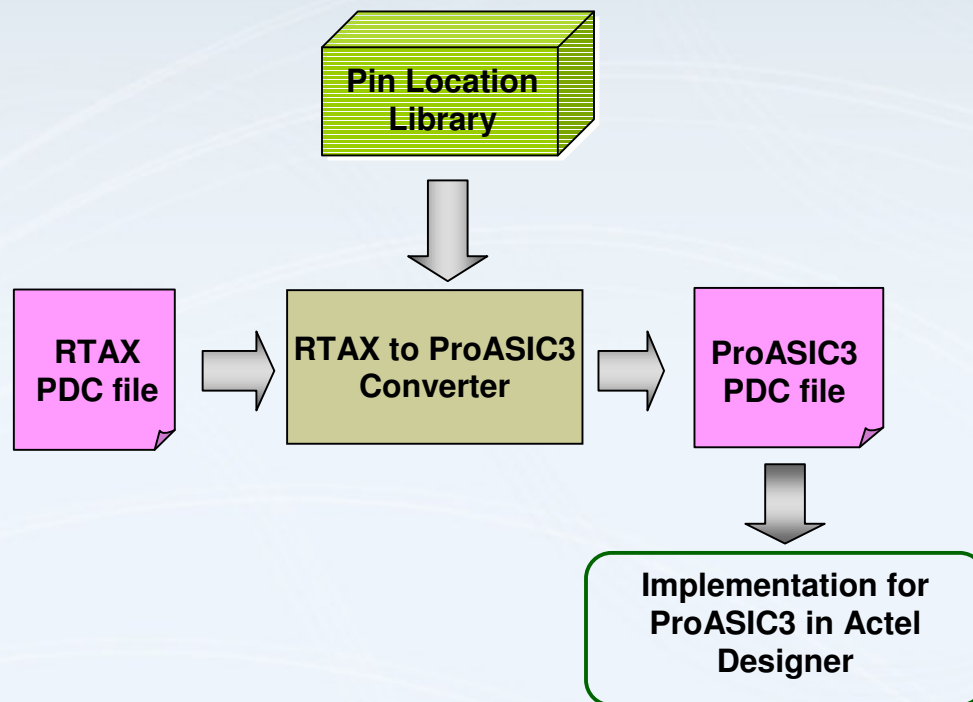
RTAX2A3P EDIF Netlist Converter



- RTAX2A3P EDIF Netlist Converter performs automatic conversion of the RTAX EDIF netlist to ProASIC3 EDIF netlist
- Features:
 - Conversion of combinatorial primitives
 - Conversion of sequential primitives
 - Conversion of I/O macros
 - Memory conversion

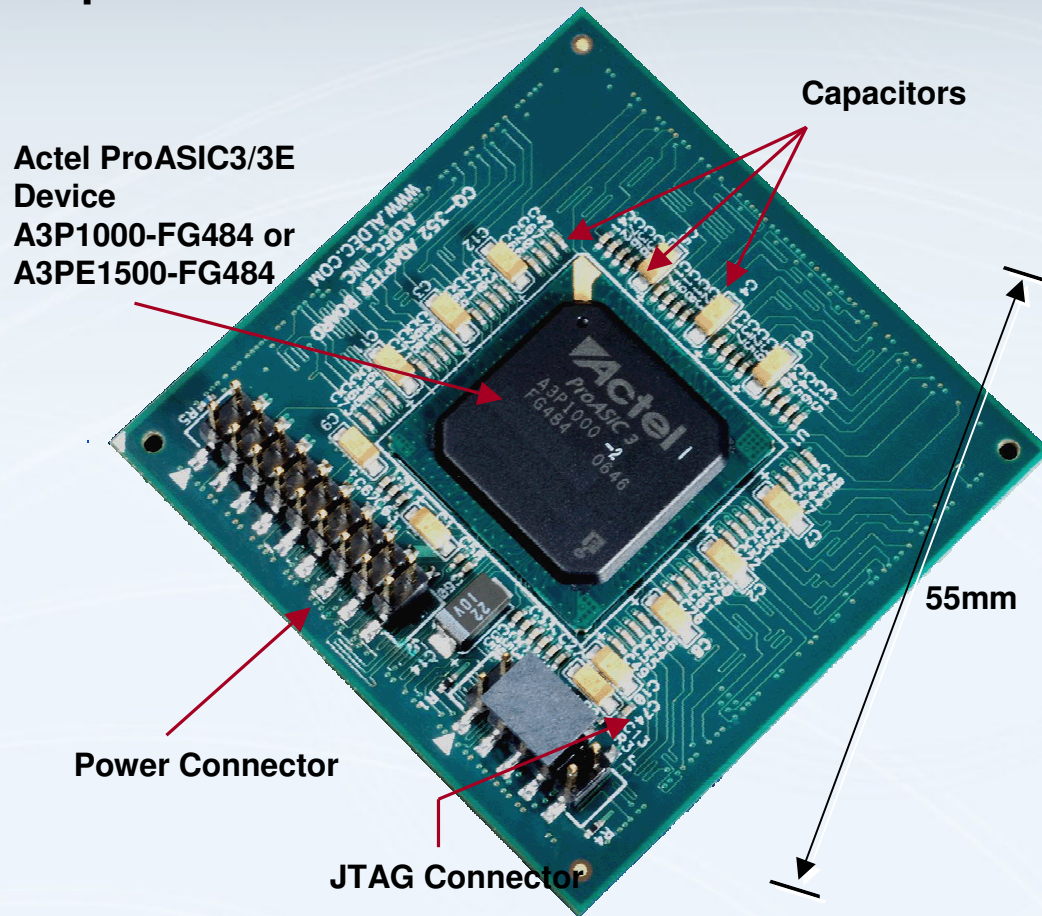
Automatic Pin Remapping

- RTAX2A3P EDIF Netlist Converter performs automatic conversion of the RTAX PDC file to ProASIC3 PDC file



A3P1000/1500-CQ352 Adaptor

Top View



Description:

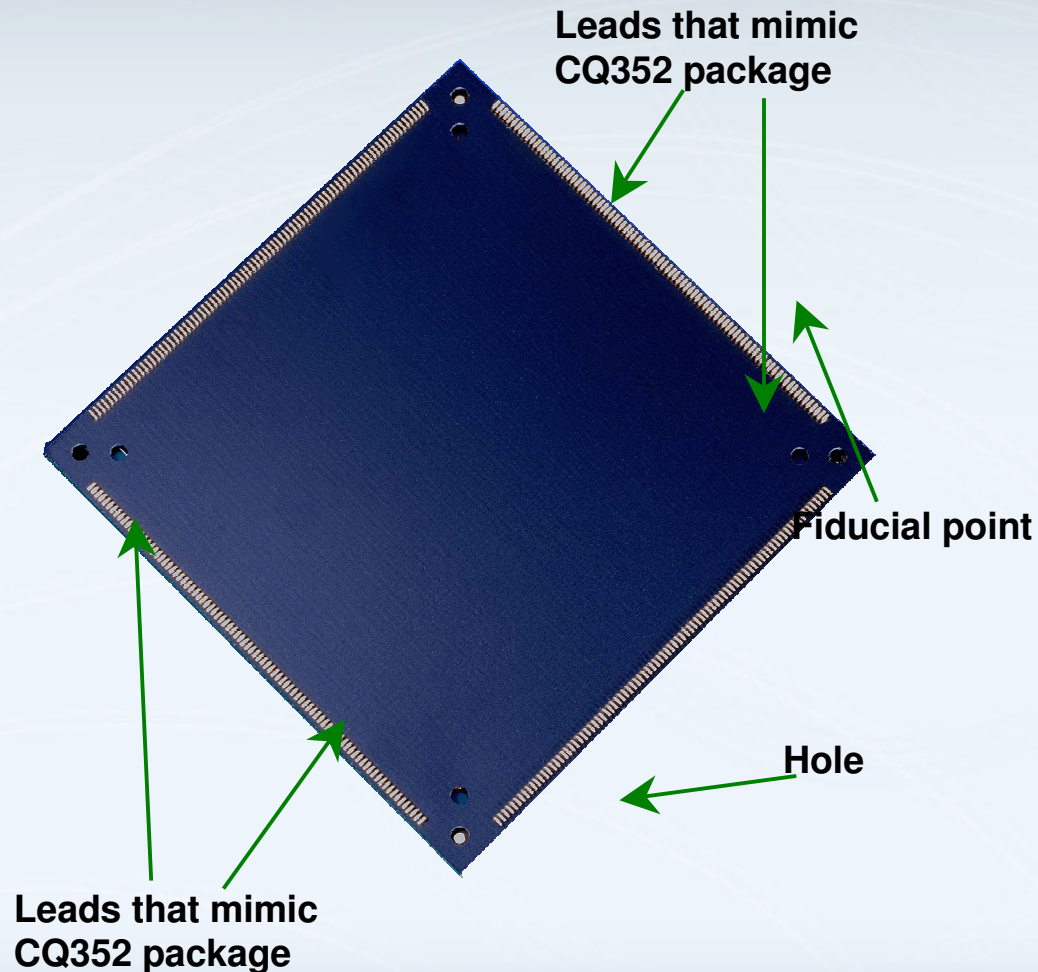
- Adaptor size: 55mm x 55mm
- The following elements reside on the top side of the adaptor:
 - Actel ProASIC3/3E device (A3P1000-FG484 or A3PE1500-FG484)
 - JTAG connector
 - Power connector

Note:

All resistors and capacitors are soldered on the top side of the adaptor. Bottom side is used as a connection layer to the customer's board.

A3P1000/1500-CQ352 Adaptor

Bottom View



Description:

– Leads on the bottom part mimic CQ352 package

Note:

Leads are trimmed and formed based on Quad Pack Specification Sheet(Fancort Industries® , Inc.)

Available Configurations

RTAX-S Device		Adaptor to be used			
Capacity	Package	A3P1000-CQ352	A3PE1500-CQ352	A3PE3000-CQ352	A3PE3000-CG624
250S-1000S	CQ352	✓	✓	✓	
1000S	CG624				✓
2000S	CQ352		✓*	✓	
2000S	CG624				✓
4000S	CQ352			✓*	

* The adaptor can be used to prototype the specified RTAX-S device only if the customer design fits into the ProASIC3E device on the top of the adaptor (less than 100% of RTAX-S device capacity is utilized).

RTAX2A3P EDIF Netlist Converter

- **Mapping**

	# of RTAX primitives	# of ProASIC3 primitives
Best Case mapping	1	1
Worst Case mapping	1	2.5
Average mapping	1	1.5

- **Performance**

- Depends on the design

Availability and Schedule

- **Configurations**

- A3P1000-CQ352
- A3PE1500-CQ352
- A3PE3000-CQ352
- A3PE3000-CG624

- **Availability**

- A3P1000-CQ352 - **Available now**
- A3PE1500-CQ352 - **Available now**
- A3PE3000-CQ352 - January, 2008
- A3PE3000-CG624 - January, 2008

Pricing

- **Prototyping Adaptor only:**

Adaptor	Suggested Price (US \$)
A3P1000-CQ352	\$3,495.00
A3PE1500-CQ352	\$3,995.00
A3PE3000-CQ352	\$4,995.00
A3PE3000-CG624	\$4,995.00

- **EDIF Netlist Converter:**

- RTAX2A3P converter - \$1,995.00
- Memory converter – 1,495.00

Contact Us

- For more information on prototyping adaptor please contact Aldec:

Tel: +1 702 990 4400

Toll Free: +1 800 487 8743

Fax: +1 702 990 4414

E-mail: support@aldec.com

www.aldec.com

or visit:

<http://www.aldec.com/solutions/actel/>



Aldec, Inc.
Corporate Headquarters

2260 Corporate Circle
Henderson, NV 89074 USA

Tel: +1 702 990 4400

Toll Free: +1 800 487 8743

Fax: +1 702 990 4414

E-mail: sales@aldec.com