Call For Evaluation

Invitation to Board Designers and Engineers:

Tel 1.949.250.4001
Fax 1.714.242.1770
www.MirrorSemi.com
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January 2007

You are invited to evaluate the benefits of **Mirrored Pinout** technology.

Your participation in this evaluation will lead to the discovery of new applications for Mirrored Pinout circuitry.

By intermixing Mirrored Pinout ICs (so-called **MirrorChip**™) with "Standard Pinouts" circuit designs achieve significant improvements as follows:

- Shorter signal path (faster speeds)
- Improvement of signal quality (less noise)
- Reduction of Vias (reduced EMI issues)
- Fewer inner board layers (lower cost)
- Overall board size reduction (smaller/lighter black box and total systems)

Please complete the one-page evaluation on page 6.

The evaluation process will help you evaluate the benefits of designing MirrorChip™ into your next project.

Thank you in advance for returning your results by fax +1-714-242-1770 or email.

Mirror Semiconductor™ is a start up venture of TopLine Corporation (California) in concert with Liberty University (Lynchburg Virginia – USA). We are in the process of raising funding from Venture Capital sources in Silicon Valley California, and elsewhere.

Regards

Martin Hart
President

Preparation Before Evaluation

Step 1: Take one of your existing designs and build a library of Mirrored Pinout footprints before running a new auto-routing process.

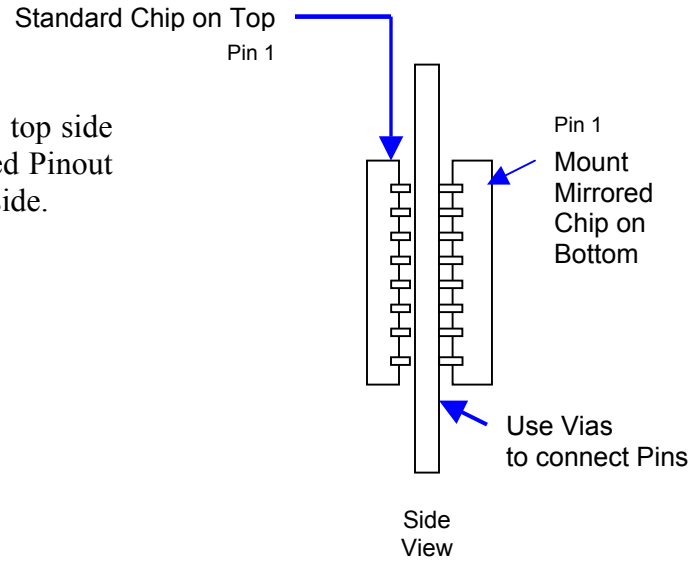
Step 2: Hint for creating library of Mirrored Pinout footprints: The TOP ("CMP") of the Mirrored footprint is the same as the Standard Pinout Bottom ("SLD").

Mirrored Pinout technology works with any pin count!
Applies to QFP, BGA, QFN, PLCC, SOIC, TSOP, even SOT packages.

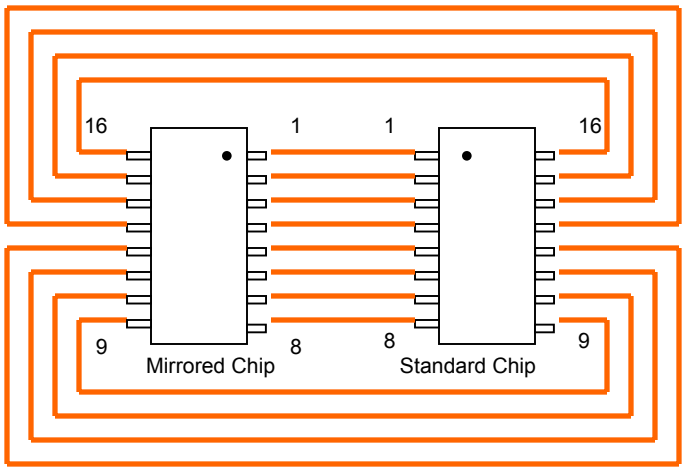
Step 3: Select either "Top over Bottom or "Side-by-Side" Method.

"Top over Bottom" Method:
Place a Standard Pinout IC on the top side of the board and place the Mirrored Pinout IC directly under it on the bottom side.

Use vias to connect the pins.



"Side by Side" Method:
Place the Mirrored Pinout and Standard device on the same side of the board. Route tracings using as much of the top layer as possible. Locate the paired devices as close as possible to each other. Use vias and inner layers only if needed.
The goal is to eliminate as many inner layers as possible



Side by Side on Top Board

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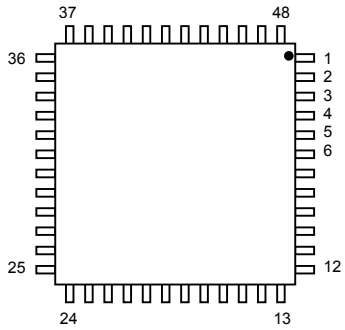
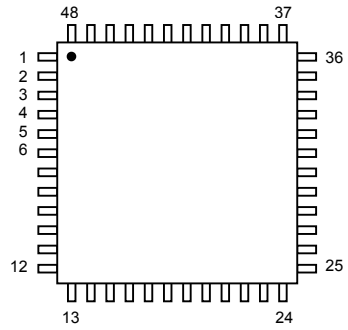
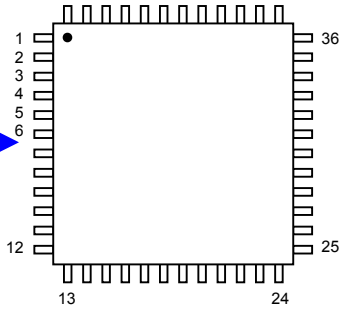
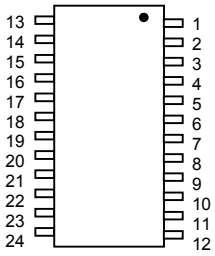
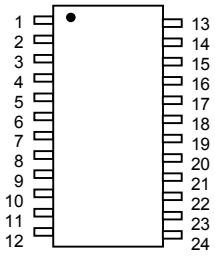
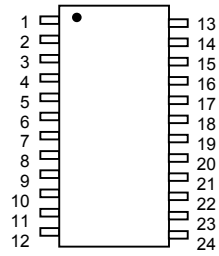
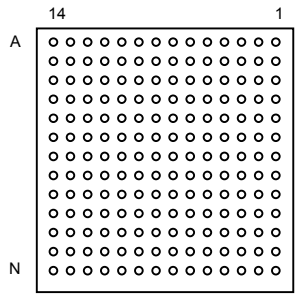
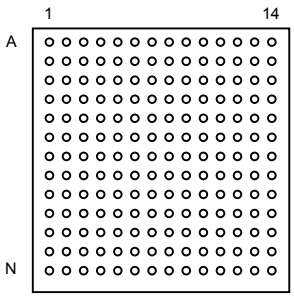
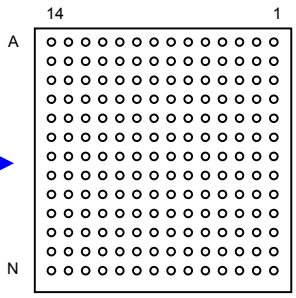
Step 4. To create a Mirrored Pinout library, just copy your "Standard Pinout" gerbers and rename the files as follows:

a) Rename Top ("CMP") Standard Pinout as Bottom ("mSLD") Mirrored Pinout.

b) Rename Bottom ("SLD") Standard Pinout as Top ("mCMP") Mirrored Pinout

Examples of Standard and Mirrored Pinout:

Mirrored Pinout (Mounted on Top of Board. Viewed from Top Side)	**Standard Pinout** (Mounted on Top of Board. Viewed from Top Side)	**Mirrored Pinout** (Mounted on Bottom of Board. Viewed from Top Side)
		
		
		
Notes: The Top ("mCMP") Mirrored Pinout is the same as the Bottom ("SLD") "Standard Pinout"	**Notes:** Pin 1 of top Standard Pinout ("CMP") Is shown in upper left corner	**Notes:** The bottom ("mSLD") Mirrored Pinout is the same as the Top ("CMP") "Standard Pinout"

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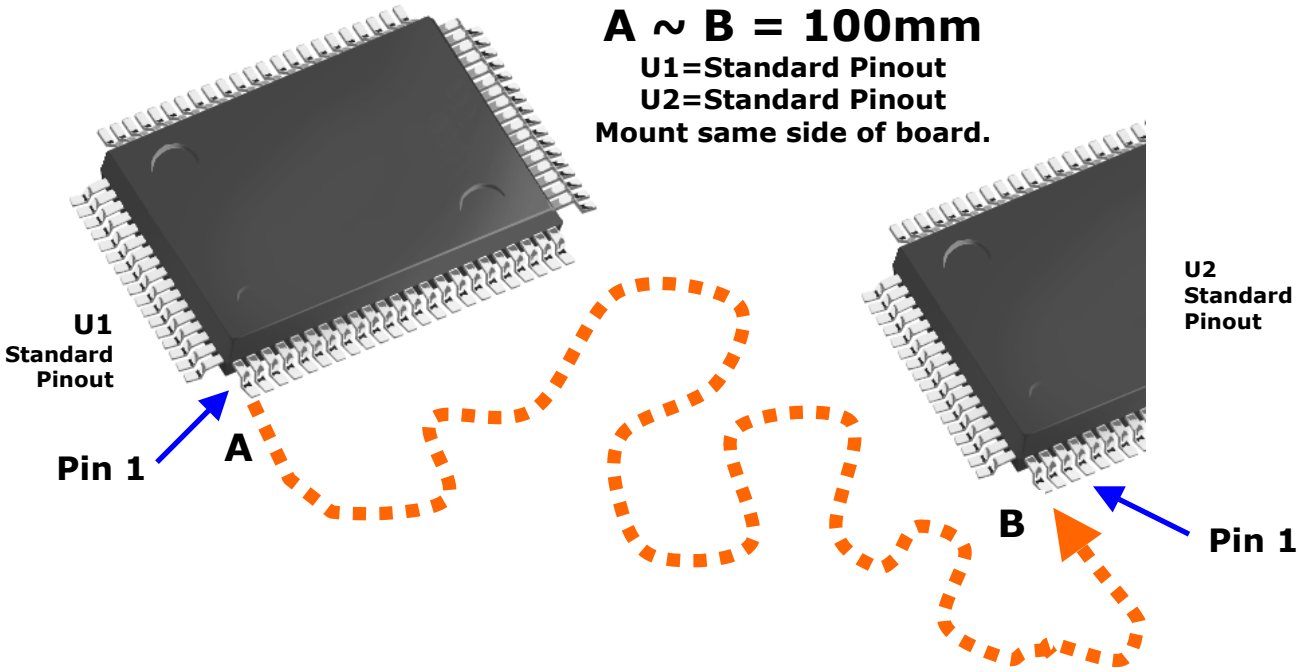
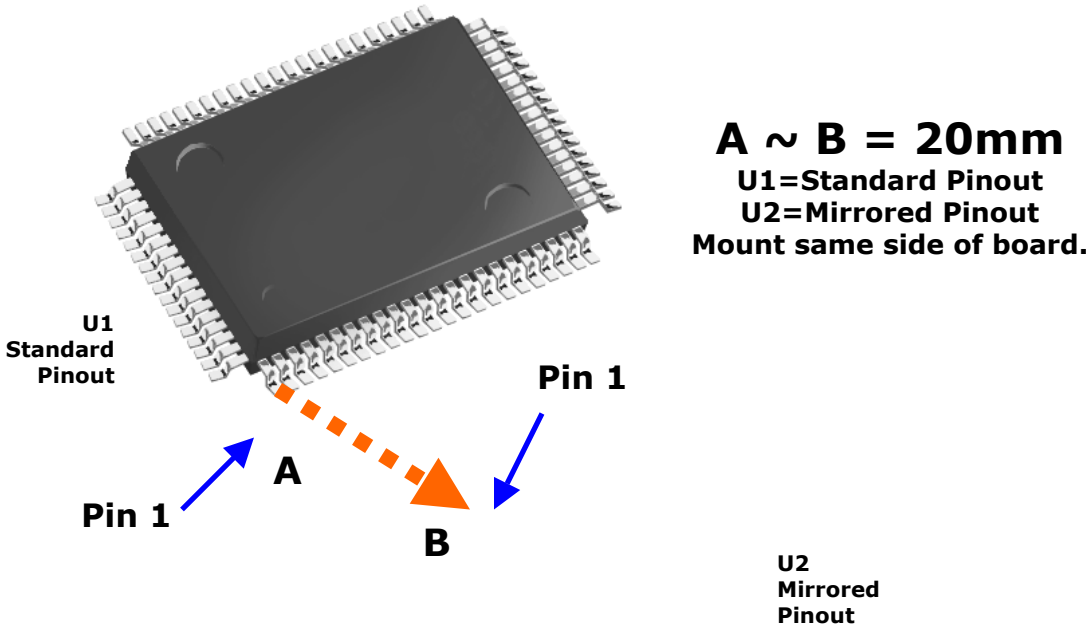
Comparison
Length of Circuit Tracing

Only Pin 1 is shown for clarity.
Other pins can be routed for shortest distance to optimize critical signals, clock, reset etc.





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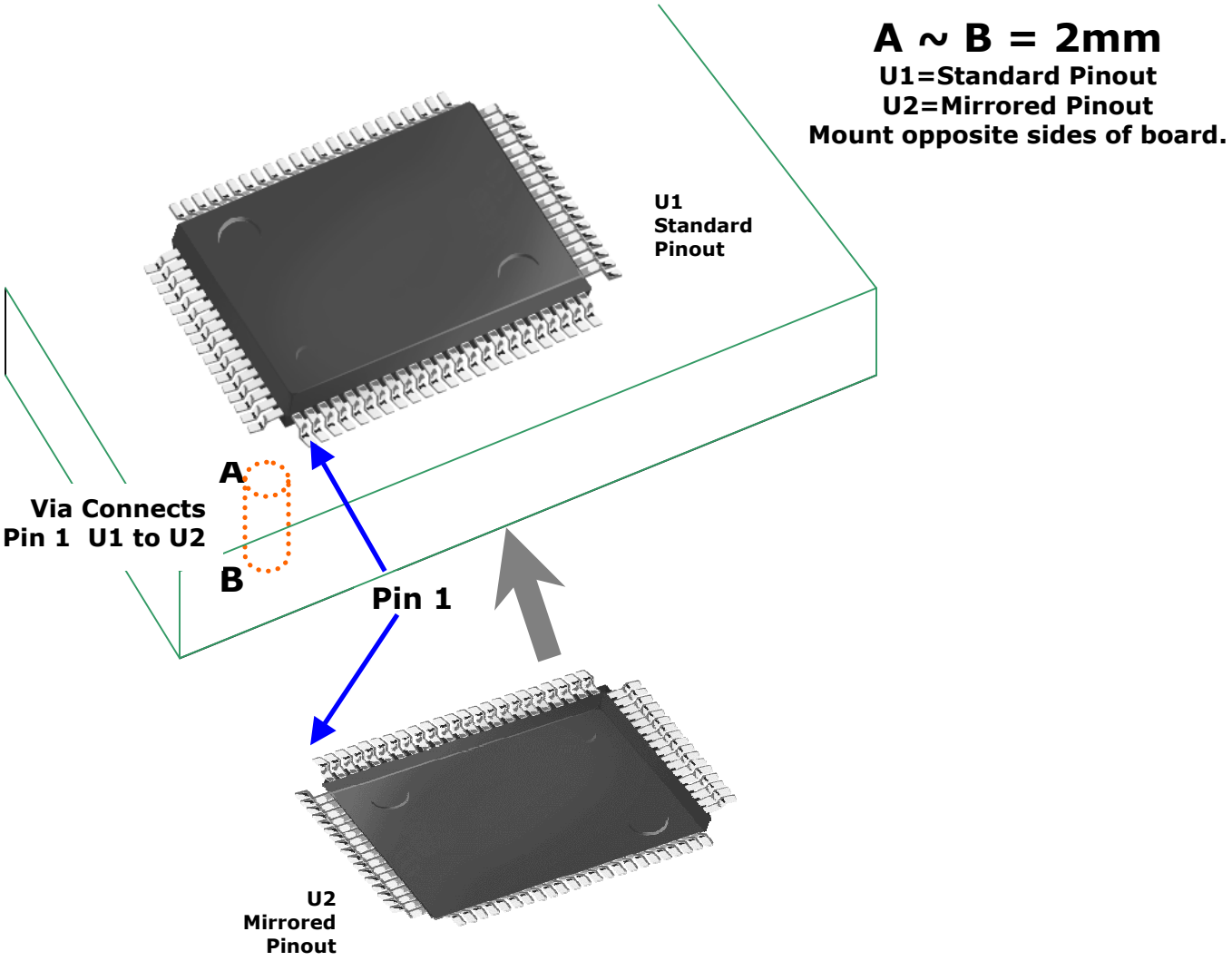

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Evaluation Work Sheet

Auto routing Before and After	**----- Before ----** Original Design. Without Mirrored Pinout	**----- After -----** Intermix Mirrored Pinout with Standard Circuits	**What Improvement Was Observed?**
Board size (L x W) →			
Number of Layers →			
Number of Vias →			
Total trace length →			
Number of Standard IC →			
Number of Mirrored IC →			
Clock/Circuit Speed →			

Overall, was the improvement in performance significant? _____Yes _____ No _____ Undecided

☐ **Additional Comments Continued.**

Your Name:…… Title ……..

Company……. Email …….

Address……. City……..

State/Province ……. Zip/Postal Code …… Country……

Tel …….. Ext ……. Date ……, 2007

Would you like to be informed of future developments with Mirrored Pinout? ___Yes ___No