

ultiROUTE

Professional & Personal Editions

Industry Leading Autorouting & Autoplacement

Would you like to fit designs on smaller boards, while at the same time improve circuit performance and achieve higher manufacturing yields? Well you can!

Whether you're designing extremely dense or very basic boards, Ultiroute will save you time and money. It is one of the most advanced autorouters in the world and the industry's only tool with both grid and gridless routing. Ultiroute also includes unique autoplacement capabilities for intelligent part placement and improved routing results.

Benchmark tests show that Ultiroute consistently outperforms all other leading autorouters!

Ultiroute's success is due, in part, to its unique application of a combined grid and gridless routing algorithm. The routing engine routes on a grid where possible, but automatically switches to gridless autorouting when necessary. You get all the benefits of gridless autorouting for difficult to route traces, with the convenience of having most traces located on grids for easy and efficient manipulation.

Ultiroute will help you dramatically improve manufacturing yields and achieve optimal board layouts. Start using Ultiroute today and make an investment in a tool that will improve your layouts and reduce production costs, paying for itself many times over.



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DESIGN SOLUTIONS FOR EVERY DESKTOP

Autoplacement & Optimization

BENEFIT OF AUTOPLACEMENT

Ultiroute's autoplacement feature uses an advanced algorithm to position parts on the board. The autoplacer is important because it will help you fit more parts onto limited board space and will place parts to achieve optimal performance when autorouting. Efficient part placement will dramatically improve routing performance and thus is an important element of better board layout.

FLEXIBLE CONTROL OPTIONS

Ultiroute's autoplacer gives you complete control over how placement is performed. You can preplace components (eg. connectors) that you want to locate at precise or specific locations. Part separation distances can be adjusted. Large part separation distances improve manufacturing yield, but typically occupy more board space and result in longer trace connections. You can control part separation values based on the relative importance of manufacturing yields versus both trace length and board sizes for each particular design.



Ultiroute's autoplacer achieves optimal placement of components

To improve part placement, Ultiroute's autoplacer supports SMD mirroring and pin/gate swaps. SMD mirroring, when selected, will place surface mount

components on the solder as well as the parts layer of your boards. As Ultiroute's autorouter proceeds, it graphically displays how parts are being placed and rearranged. Status information at the bottom of the screen indicates progress, pass, and pin/gate swap information. At any time while the autoplacement routine is running, you can stop the run, make changes, and resume without having to restart.

AUTOPLACEMENT FEATURES

- ◆ Pre-place critical components
- ◆ Through hole and SMD support
- ◆ Set minimum distance between parts
- ◆ SMD mirroring
- ◆ Pin/gate swap
- ◆ Graphical progress display
- ◆ Advanced SMD fanout
- ◆ Make changes without restarting
- ◆ Cluster placement support
- ◆ Automatic block capacitor recognition

MANUFACTURING OPTIMIZATION

Even after the autorouter has achieved 100% completion, Ultiroute lets you refine your board to optimize board layout, reduce production costs, and improve manufacturing yield. A fully customizable cleanup routine will enhance your PCB layout by reducing via counts, mitering corners, smoothing traces, and removing any wire bends created during autorouting.

OPTIMIZATION FEATURES

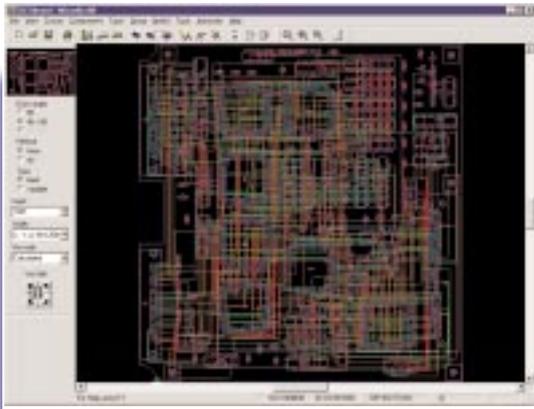
- ◆ Fully customizable optimization cost factors
- ◆ Trace smoothing
- ◆ Via reduction
- ◆ Cross-net cleanup
- ◆ Corner mitering



Grid & Gridless Autorouting

UNIQUE GRID AND GRIDLESS ROUTING ALGORITHM

Ultiroute is unique in the industry due to its combined grid-based and gridless autorouting algorithm. Ultiroute automatically routes board traces based on a grid, but moves to a gridless method when grid-based routing is not possible. This combination of grid-based and gridless autorouting technologies consistently achieves more efficient board layout with higher completion rates. Traces are generally routed on a grid, and are therefore easy to manipulate and move, should they need to be adjusted. However, traces can also be routed off-grid, when necessary, as they are not constrained to grid points. Ultiroute easily handles dense pin arrays and can route around the contour of any shape. This will help you fit more circuitry onto less board space and reduce the number of vias required.



Ultiroute's unique routing engine delivers efficient board layout with high completion rates.

DESIGN ANALYSIS FEATURES OPTIMIZE PERFORMANCE

For each unique board, changing an autorouter's settings will affect layout results. Ultiroute automates this complex process so that the

autorouter always delivers near optimal performance. To do this, Ultiroute analyzes your design file and changes the router default settings based on the characteristics of that particular design. This contributes to Ultiroute's ability to consistently achieve better autorouting results when compared to other leading autorouters, which utilize "fixed" default settings that are the same for every design.

FULLY CUSTOMIZABLE ROUTING OPTIONS

The highly flexible router gives you complete control over the autorouting process. You can define anything from grid size and maximum via counts to preferred routing directions for each layer of the PCB. You also have complete control over the costing factors used by the routing algorithm: via cost, pin channel cost, packaging cost, counter direction cost, etc.

As part of its routing algorithm, Ultiroute tries, when possible, to produce visually pleasing board layouts. This is accomplished by an algorithm that places similar shaped parts together in a consistent manner. As a result, Ultiroute not only delivers exceptional performance, but it also produces extremely professional looking part and trace layouts.

AUTOROUTING FEATURES

- ◆ Unlimited undo and redo
- ◆ Graphical progress display
- ◆ Via offset support
- ◆ Pin/gate swap
- ◆ SMD via pre-placement
- ◆ Fully customizable cost factors
- ◆ Batch routing option
- ◆ User defined grid
- ◆ Supports manual wire pre-placement
- ◆ Multi-layer routing
- ◆ Power layer routing
- ◆ Maximum via setting

ultiROUTE *Professional & Personal Editions*

Ultiroute combines advanced autoplacement with state-of-the-art autorouting for optimal layout of your printed circuit boards. No matter what the complexity of your designs, you'll be amazed at the way Ultiroute will place and route your boards, consistently improving circuit performance and reducing production costs.

In benchmark tests, Ultiroute demonstrates superior routing results compared with Spectra® V6, delivering noticeably superior board designs with fewer vias and shorter copper lengths. While other applications use either grid or gridless autorouting, Ultiroute is truly unique, utilizing a combination of grid-based and gridless routing as required.

FEATURES

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	ultiROUTE <i>Professional</i>	ultiROUTE <i>Personal</i>
AUTOPLACEMENT		
PRE-PLACE CRITICAL COMPONENTS	✓	N/A
THROUGH HOLE AND SMD SUPPORT	✓	N/A
SET MINIMUM DISTANCE BETWEEN PARTS	✓	N/A
SMD MIRRORING	✓	N/A
PIN/GATE SWAP	✓	N/A
GRAPHICAL PROGRESS DISPLAY	✓	N/A
ADVANCED SMD FANOUT	✓	N/A
CLUSTER PLACEMENT SUPPORT	✓	N/A
AUTOMATIC BLOCK CAPACITOR RECOGNITION	✓	N/A
MANUFACTURING OPTIMIZATION		
FULLY CUSTOMIZABLE OPTIMIZATION COST FACTORS	✓	✓
TRACE SMOOTHING	✓	✓
VIA REDUCTION	✓	✓
CROSS-NET CLEANUP	✓	✓
CORNER MITERING	✓	✓
GRID OR SHAPE-BASED AUTOROUTING		
UNLIMITED UNDO AND REDO	✓	✓
GRAPHICAL PROGRESS DISPLAY	✓	✓
VIA OFFSET SUPPORT	✓	✓
PIN/GATE SWAP	✓	✓
SMD VIA PRE-PLACEMENT	✓	✓
FULLY CUSTOMIZABLE COST FACTORS	✓	✓
BATCH ROUTING OPTION	✓	✓
USER DEFINED GRID	✓	✓
SUPPORTS MANUAL WIRE PRE-PLACEMENT	✓	✓
MULTI-LAYER ROUTING	✓	✓
POWER LAYING ROUTING	✓	✓
MAXIMUM VIA SETTING	✓	✓



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