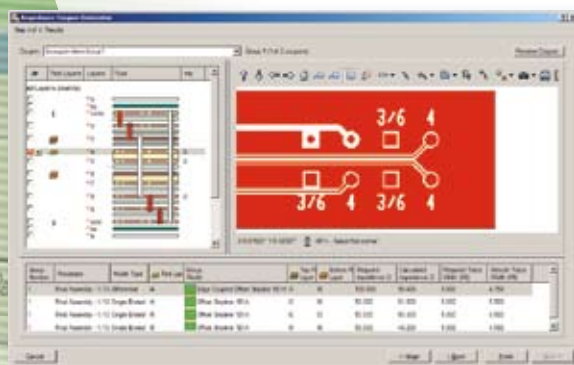




InCoupon

## Automatic Impedance Coupon Generator



InCoupon Result Screen

**InCoupon** leverages your existing CAM and Engineering application to automatically generate coupons. You'll notice the difference instantly – fast design and output, top quality coupons and the smallest possible coupon footprint on the panel.

- Reduce CAM and Engineering cycle time
- Design coupons for impedance testing in the early production stages
- Generate coupons that meet all DRC, signal integrity and testability requirements
- Minimize the coupon footprint on the panel
- Transform coupon design from an expert task to a standard operation
- Integrate CAM and Engineering data for efficient coupon design

- ✓ Reads impedance lines in ASCII format
- ✓ Single-ended, differential, coplanar and broadside modeling support
- ✓ Automatic line grouping
- ✓ Multi-layout support including single and two-ended layout
- ✓ AutoLayout
- ✓ AutoLabeling
- ✓ Multi-choice shielding
- ✓ Auto buildup generation
- ✓ Automatic sub-assembly testing
- ✓ Save coupons in ODB++ format

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InCoupon

# InCoupon

Automatic Impedance Coupon Generator

## Automatic Impedance Coupon Generator

Constraint	Group	Model Type	Test Layer	Group	Top Pad Layer	Bottom Pad Layer	Required Impedance (Ω)	Calculated Impedance (Ω)	Required Thickness (mm)	Calculated Thickness (mm)	No. To Test
SP-1	1	Edge Coupler	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-2	2	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	49.438	0.127	0.127	✓
SP-3	3	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-4	4	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-5	5	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-6	6	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-7	7	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-8	8	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-9	9	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-10	10	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-11	11	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-12	12	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-13	13	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-14	14	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-15	15	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-16	16	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-17	17	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-18	18	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-19	19	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-20	20	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-21	21	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-22	22	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-23	23	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-24	24	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-25	25	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-26	26	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-27	27	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-28	28	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-29	29	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓
SP-30	30	Single Ended	Control Microstrip	Control Microstrip	Control Microstrip	Control Microstrip	50.000	50.000	0.127	0.127	✓

Impedance Constraints Manager

### Cut cycle time and improve quality

Replace manual designs with reliable, automatically computed coupons generated according to job attributes and user-defined rules. Save time and output all coupon-related designs in a single run.

### Reduce coupon footprint on panel

Reduce the number of coupons without compromising testability. For maximum footprint optimization, choose AutoGrouping, where different impedance lines are grouped together to allow mixed modeling methods and model layer spans on the same coupon. In addition, automatic U-turn design enables the use of coupons that are shorter than the desired impedance line length, to further minimize the coupon footprint while ensuring signal integrity.

### Configure layouts and select a shielding mode

Easily configure coupon layout by defining pad layout, size and pitch settings to match TDR specifications. Choose from a range of shielding modes including solid copper, dotted and line patterns.

### Run coupon AutoLabeling for easy identification

Use InCoupon's AutoLabeling capabilities to ensure impedance line readability on the shop floor and to simplify TDR probing operations.

### Perform sub-assembly coupon testing

Test impedance lines at the sub-assembly stage to prevent costly errors and scrap from incorrect inner-layer impedance measurements. InCoupon's embedded understanding of the buildup structure and ability to detect optimal drill interconnectivity across sub-assembly layers enables existing board drill layers to be used for coupon layer interconnectivity.

### Integrate CAM and Engineering data

InCoupon can read Engineering impedance line definitions and CAM layer data to form the right buildup and sub-assembly structures and generate impedance coupons, with optimum layer interconnectivity. Review finished coupons graphically in the embedded CAM Viewer, or store as ODB++ steps in your CAM database.



Automatic U-turn design

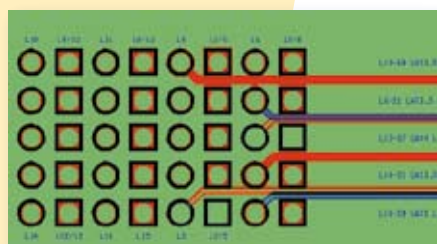
### Minimum System Requirements

Server OS	Windows XP
Database	To be provided with InCoupon
Client OS	Windows 2000, Windows XP
Platform	Pentium 4, 1500 MHz and above
Memory	Minimum 1024 MB
Hard Disk	Minimum 9GB
Monitor	Minimum 17", color monitor, resolution 1280x1024

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Mixed type coupon

### Tight integration with Frontline's products

InCoupon integrates seamlessly with Frontline's CAM and Engineering product suite – InPlan™, InPlan™Flex, InStack™, Genesis 2000 and GenFlex™ – which comprises industry leading, PCB software applications from the quoting stage, through process planning engineering and CAM, all the way to the production floor.

www.frontline-pcb.com

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