

RFIC Inductor Synthesis for ADS

User friendly, automated, accurate Inductor Synthesis

With EM solvers like ADS Momentum or Sonnet, you can EM simulate an RFIC inductor if the layout already exists, but how to design the best possible layout? How to find the best inductor layout for your requirements? Mühlhaus Inductor Toolkit for ADS does that synthesis for you, and enables you to efficiently design "optimum" inductors.

Your input:

- Required inductance value and target frequency
- Geometry limitations

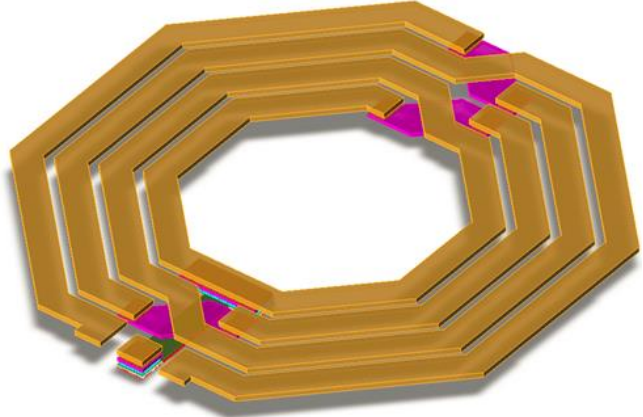
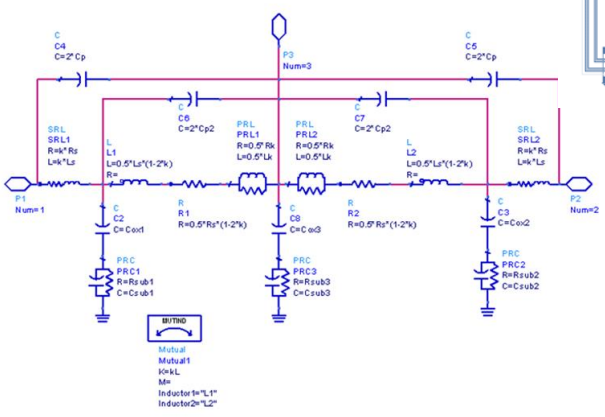
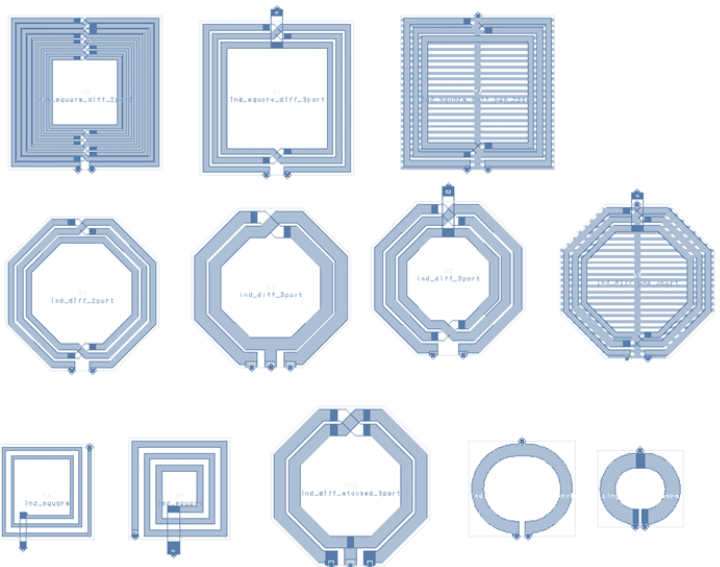
Inductor Toolkit does the work for you:

- The software creates inductor layouts for this inductance value
- The software finds the layout with the best performance (best Q factor)

You get:

- DRC clean layout with the best possible inductor, within the given geometry limits
- EM accurate simulation results for the inductor
- Equivalent circuit model and Spectre *.scs netlist file

```
// Inductor model file www.muehlhaus.c
simulator lang=spectre
subckt OctaDiffStacked_2n0_N2_w18_s2_d
SRL1R (1 100) resistor r=9.81372e-002
SRL1L (100 101) inductor l=2.28284e-01
C4 (1 2) capacitor c=3.38452e-014
C5 (101 104) capacitor c=8.92678e-015
L1 (101 102) inductor l=1.41846e-009
R1 (102 103) resistor r=6.09785e-001
PRL1R (103 104) resistor r=1.00596e+00
PRL1L (103 104) inductor l=8.09504e-01
SRL2R (104 105) resistor r=9.81372e-00
SRL2L (105 2) inductor l=2.28284e-010
C2 (101 200) capacitor c=1.41437e-013
PRC1C (200 3) capacitor c=4.19843e-014
PRC1R (200 3) resistor r=1.23410e+003
```



Inductor Toolkit Functionality

- ADS add-on for user friendly, accurate inductor synthesis
- Layout Pcells for different inductor geometries
- Pre-configured EM substrate examples for Momentum and FEM
- Automation to synthesize inductor layouts based on inductance
- Automation to find the best performing inductor with best possible Q factor, within given geometry limitations
- Automation to fit a wideband physical equivalent circuit model and output as *.scs netlist

Inductor Layout Options

- Differential Octagon on top metal with/without center tap
- Differential Octagon stacked on two top metals with/without center tap
- Differential Octagon with/without center tap, with M1 patterned ground shield
- Differential Square on top metal with/without center tap
- Differential single turn layout optimized for mm-wave frequencies
- Single ended (non- symmetric) square with 0°/90°/180°/270° feedline orientation

Supported Technologies

Factory configured Inductor Toolkit versions are available for:

- IHP SG25H1/H3, IHP SGB25V, IHP SG13S/SG13G2
- Infineon B7HF200, Infineon B11HFC
- TowerJazz SBC18H

Open technology generic version:

Factory configured versions can only be used for the specified technology, and cannot be customized by the user for other technologies. If you want to use Inductor Toolkit with other technologies, the open technology generic version is required. Only this generic version includes source code to modify layer mappings and Pcell details for other technologies.

Prices

Special prices valid from **1. November 2014 until 31. December 2014:**

	Regular	University
• Inductor Toolkit Pro factory configured for IHP technologies:	2.900,-€	1.450,- €
• Inductor Toolkit Pro factory configured for Infineon technologies:	3.300,-€	1.650,-€
• Inductor Toolkit Pro generic, technology fully customizable by the user:	5.800,-€	2.900,-€

These prices are for a permanent (purchased) single user license.
19% VAT is not included in these prices. ADS is not included.
Company site license upgrade for unlimited users at the same site: +100%

Dr. Mühlhaus Consulting & Software GmbH
Drosselweg 11, 58455 Witten, Germany
www.muehlhaus.com
info@muehlhaus.com

