

## Octave / MATLAB Toolbox for GDSII Stream Format

=====

Ulf Griesmann, NIST, 2008 - 2016

ulf.griesmann@nist.gov, ulfgri@gmail.com

Most functions in this toolbox are in the Public Domain (see Notice\_and\_Disclaimer.pdf), with the following exceptions:

- Boolean/clipper.hpp and Boolean/clipper.cpp are subject to the Boost Software license 1.0: [http://www.boost.org/LICENSE\\_1\\_0.txt](http://www.boost.org/LICENSE_1_0.txt)
- Structures/private/datamatrixmex.c is subject the GNU Public License version 2: <http://www.gnu.org/licenses/gpl-2.0.html>
- Basic/gdsio/convert\_float\_gcc.h is subject to the GNU Public License version 3: <http://www.gnu.org/copyleft/gpl.html>  
NOTE: This file is only used when the toolbox is compiled with GCC, otherwise 'convert\_float\_generic.h' is used instead, which is in the Public Domain.

New releases of the toolbox can be downloaded from:

<https://sites.google.com/site/ulfgri/numerical/gdsii-toolbox>

## Documentation

=====

Additional documentation is available on:

<https://sites.google.com/site/ulfgri/numerical/gdsii-toolbox>

in a tutorial: GDSII\_for\_the\_Rest\_of\_Us-<date>.pdf

The file gdsii\_docs-<nn>.zip contains definitions of the GDSII file format and example scripts for the toolbox.

## Functions

=====

Toolbox functions are grouped into the following directories:

### Basic:

Contains the low level functions for reading and writing of files in GDSII stream format and defines objects and methods for working with GDSII layouts.

### Elements:

Contains functions that return gds\_element objects.

### Structures:

Contains functions that return gds\_structure objects

### Boolean:

The GDSII toolbox contains a method that performs boolean set operations on boundary elements. This is described in more detail in the file: README-Boolean / README-Boolean.pdf

### Misc:

Functions that don't return gds\_\* objects.

### Scripts:

Command line scripts for Octave that can be run directly

from the shell prompt in a Linux / Unix environment.

## Compiling

=====

This software contains several MEX functions, which must be compiled with a C compiler (and a C++ compiler for the Clipper library), before the library can be used. The C compiler must be sufficiently C99 conformant; the LCC compiler that is included with earlier versions of MATLAB will not compile many of the mex functions (see the MATLAB documentation for compiling external functions).

For Octave on Linux, the mex functions are compiled by executing

```
$ ./makemex-octave
```

at the shell prompt. In MATLAB or Octave on Windows the mex functions are compiled by changing to the ./gds2-toolbox directory and running

```
>> makemex
```

at the MATLAB/Octave command prompt.

## Useful Stuff

=====

Very good viewer and editor for GDSII files: <http://www.klayout.de>

## Help

====

If you find a bug in the software, please send a message to [ulf.griesmann@nist.gov](mailto:ulf.griesmann@nist.gov) or [ulfgri@gmail.com](mailto:ulfgri@gmail.com) and I will try to fix it.