

# Chip Packaging Toolkit



## Advanced Packaging Support

In almost every aspect of normal daily life the need for smaller, lighter electronics has become a mandatory driving force in their design. This requirement has meant PCB CAD design tools must also adapt to meet the higher demands made on them. With the introduction of the Pulsonix Chip Packaging Toolkit this emerging technology is enabled with a powerful toolset.

## Specialised Tools

The smaller devices and support for advanced technologies allows board real estate to be maximised, thus the overall design can be reduced. These technologies require specialised tool sets not normally found in mainstream PCB design systems.

## Take Advantage

Pulsonix users who have designs with bare die components, can take advantage of the features provided by the new Chip Packaging Toolkit option. The Chip Packaging Toolkit provides options for creation and annotation of die & bond pads and bond wires, and for automatically placing bond pads around a defined shape. Within the Pulsonix design the bond pads are treated as special pads and can move independently of die and normal pads.

## Advanced Rule Sets

To support this advanced technology, Pulsonix contains a set of rules that are obeyed using both the Online DRC and batch design rules checking process options. Rules can be set for min and max length of the bond pad from the die pad, and for the crossing over of insulated and non-insulated wires. Spacing rules can be defined per net class so that rule classes can be set to smaller values for Components that need them. This is also a mandatory requirement where mixed conventional and bare die technologies are mixed.

## Footprint Creation

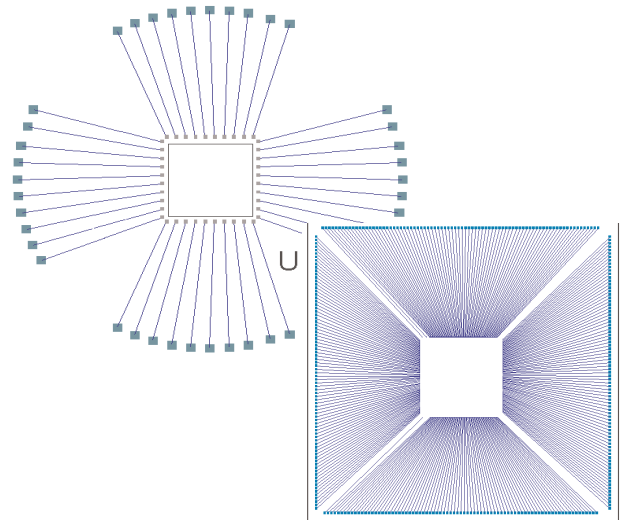
The Footprint editor allows fast and simple creation of the advanced technologies. Options for the insertion of die and bond pads into the footprint ensure that the correct pad type is used and subsequently handled correctly later on in the design editor. Addition of die pads will allow the die and bond pad plus the bond wire to be added in one single process. Default sizes for die and bond pads and wires ensure that user defined values are always being maintained.

To facilitate placement of bond pads in a uniform pattern you can use the place on shape option.

Where bond pads must be in-line with the wire, a switch allows you to maintain this alignment even when the bond pad is rotated or moved in the footprint. For bond pads which must be at a specific angle or 90 degrees, this can also be maintained. Bond pads in-line with the wire ensures that the wire is 'fired' onto the maximum available 'landing site'.

## Component Interaction

Components which contain die and bond pads are handled intelligently using an advanced rule set. Bond pads can be interactively moved independently of the main footprint 'body'. This movement is controlled using the min and max length rules of the bond wire, cross-over rules are also maintained in this process.



During move, selection of a complete Component ensures that all bond pad positions are maintained relative to the main Component body, hence precise bond pad positions are always guaranteed.

## Comprehensive Reports

Pulsonix provides a set of detailed reports that can be used to output wire positions (X and Y position of each pad landing site and net name). The powerful Report Maker option also allows all Chip Packaging items to be output using the comprehensive command driven language so custom reports can be created.

## Feature Set:

- Insert Bond pad
- Insert Die pad
- Insert Wire between die and bond pads
- Place bond pads around shape
- Finger pad shapes supported with automatic angle offsetting on radial shapes
- Ability to move independently floating bond pads of footprints in design editor
- Library includes a selection of bare die footprints
- Support for insulated or non-insulated (bond) wires

The lists below are ancillary features which aid the production and reporting of the die items but are included within the standard Pulsonix PCB system.

- Report Maker can output bond pad positions
- Report Maker can output die pad positions
- Report Maker can create a report for manual and automatic wire machines
- Wire report output
- On-line and batch design rules checking of:
  - Wires crossing (allowed for insulated wires, not allowed for non-insulated wires)
  - Min/max bond wire lengths
  - Item colours for bond pads and wires
  - Wires inserted on special layer
  - Layer Class definitions for bond pad only plots

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