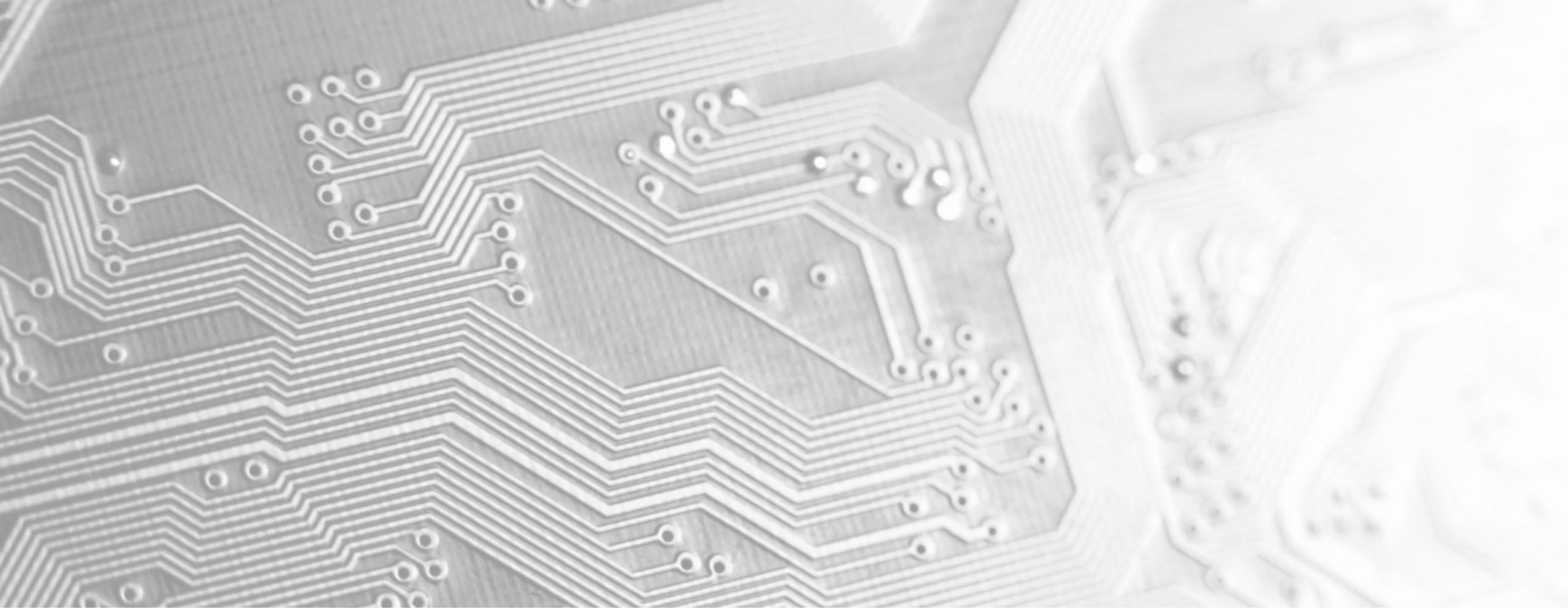


Integr8tor v2015.06

Ucamco

CONFIDENTIAL

Integr8tor

Version 2015.06

64 Bit

Multi Core

Introduction

We are pleased to announce the release of Integr8tor version 2015.06

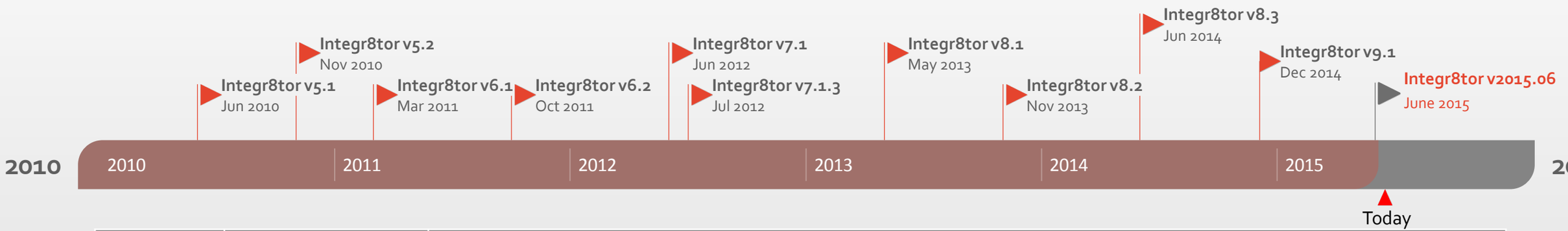
Integr8tor v2015.06 offers significant improvements and new functionality, explained in these release notes.

It also offers better quality and a number of bug fixes.

We recommend that you install this version as soon as possible.

Release history

Commitment to regular updates



Version	Release date	Highlights	
5.1	July 2010	Multiple job submit via email.	CAM input report.
5.2	November 2010	Copper clearances by type.	Scoring calculation.
6.1	March 2011	Perspectives in Cockpit.	Improved performance.
6.2	November 2011	Multiple QED reports.	Exposed copper calculation.
7.1	June 2012	Localized interface.	Line width on planes.
7.1.3	July 2012	Bug fix release for 'recovered job'.	
8.1	May 2013	Support for ODB++ v7.	Compatible with Windows server 2012 and windows 8.
8.2	November 2013	Detection and flagging of duplicate archives.	Edge connector recognition.
8.3	June 2014	New standard parameters.	Determination of laser/mechanical drilling.
9.1	December 2014	Support for Gerber X2 datasets.	Optimized and new QED values.
2015.06	June 2015		

Overview

New functionality and enhancements

- Better recognition of Gerber X2
- Improved conversion of documents in various formats to PDF
  - Improved DWG/DXF to PDF conversion (+B&W), better .docx support
- New fields in Cockpit Drill Editor for marking holes with special characteristics
  - Countersink/counterbore holes
  - Copper/resin filled holes
- Determine the number of press stages based on drill spans
- Overlapping holes within drill sequences are now reported
- Second generation edge connector recognition
- Auto snap of drill to copper pads for more useful minimum ring analysis
- Improved determination of same net spacing

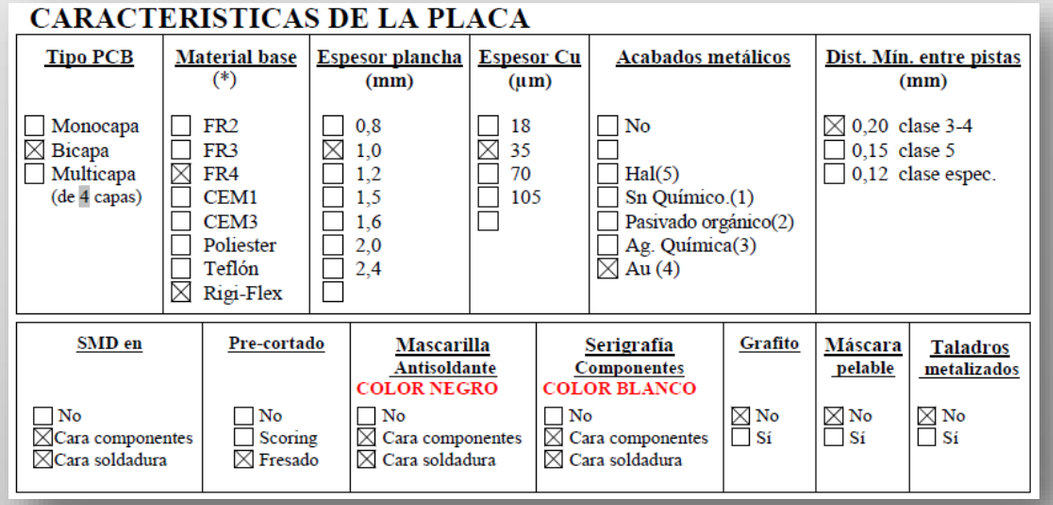
Improved conversion to PDF

The conversion of some PDF documents were not always handled correctly.

- Introduction of an improved algorithm to convert documents to PDF files.

Benefits

- Checkboxes in documents converted correctly for proper visualization
- Dropdown menus converted accurately
- Better compatibility with .docx files
- More file types converted with more reliable results



CARACTERISTICAS DE LA PLACA

Tipo PCB	Material base (*)	Espesor plancha (mm)	Espesor Cu (µm)	Acabados metálicos	Dist. Mín. entre pistas (mm)
☐ Monocapa ☒ Bicapa ☐ Multicapa (de 4 capas)	☐ FR2 ☐ FR3 ☒ FR4 ☐ CEM1 ☐ CEM3 ☐ Poliester ☐ Teflón ☒ Rigi-Flex	☐ 0,8 ☒ 1,0 ☐ 1,2 ☐ 1,5 ☐ 1,6 ☐ 2,0 ☐ 2,4 ☐	☐ 18 ☒ 35 ☐ 70 ☐ 105 ☐	☐ No ☐ ☐ Hal(5) ☐ Sn Químico.(1) ☐ Pasivado orgánico(2) ☐ Ag. Química(3) ☒ Au (4)	☒ 0,20 clase 3-4 ☐ 0,15 clase 5 ☐ 0,12 clase espec.

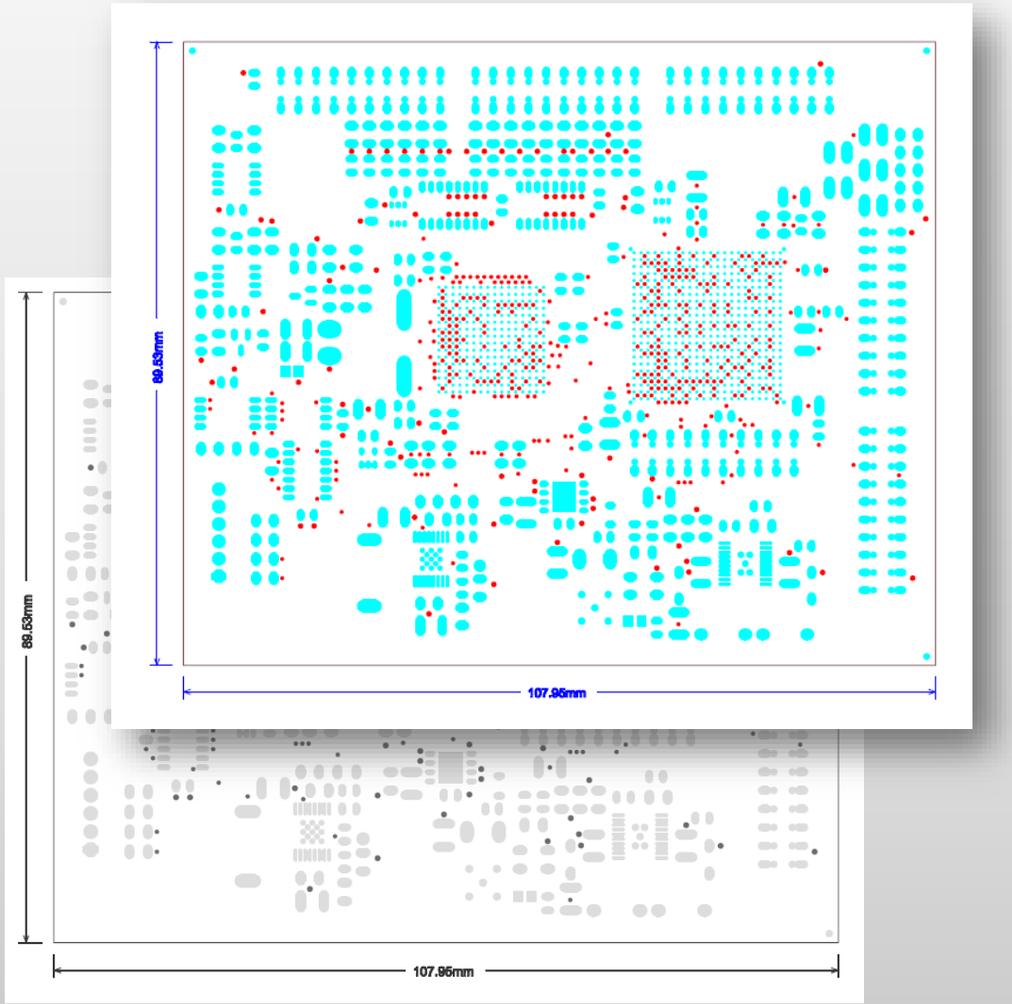
SMD en	Pre-cortado	Mascarilla Antisoldante COLOR NEGRO	Serigrafía Componentes COLOR BLANCO	Grafito	Máscara pelable	Taladros metalizados
☐ No ☒ Cara componentes ☒ Cara soldadura	☐ No ☐ Scoring ☒ Fresado	☐ No ☒ Cara componentes ☒ Cara soldadura	☐ No ☒ Cara componentes ☒ Cara soldadura	☒ No ☐ Sí	☒ No ☐ Sí	☒ No ☐ Sí

Improved handling of DWG/DXF drawings

A new conversion tool allows us to convert DWG/DXF files to PDFs more accurately and faster

Benefits

- DWG files previously not converted to PDF are now handled.
- Conversion of DXF is more accurate
- Ability to convert to Black & White for improved readability



Support for drill characteristics

Ability to add characteristics to holes diameters

- Holes which are non-standard and require special handling can be identified.
- Countersink/counterbore
  - Identification of holes requiring special enlargement
- Via Filling
  - Identification of small holes which must be completely filled
  - Can be copper or resin filled

Benefits

- Special tools and processes identified
- Greater detail of cost affecting processes

Drill Tools

File	Tool Nr.	Span	Type	Method	FilledVia	Countered	End Dia.	Holes (in PCB)	Moves (in PCB)	Double Hits (in File)	Predrill Hits (in File)	Min. Ring on Outer	Min. Ring on Inner	Min. Pad Size
							mm					mm	mm	mm
Nonplated-Drill_drl	1	1-2	NPTH	unknown	unknown	unknown	1.190	3	0	0	0	> 0.800		
Nonplated-Drill_drl	2	1-2	NPTH	unknown	unknown	unknown	0.990	3	0	0	0	> 0.800		
Nonplated-Drill_drl	3	1-2	NPTH	unknown	unknown	counterbore	1.700	12	0	0	0	> 0.800		
Nonplated-Drill_drl	4	1-2	NPTH	unknown	unknown	countersink	2.540	12	0	0	0	> 0.800		
Nonplated-Drill_drl	5	1-2	NPTH	unknown	unknown	unknown	2.540	12	0	0	0	> 0.800		
Plated-Drill_drl	1	1-2	PTH	unknown	unknown	unknown	0.305	1194	0	0	0	0.186		0.677
Plated-Drill_drl	2	1-2	PTH	unknown	unknown	unknown	0.203	292	0	0	0	0.093		0.389
Plated-Drill_drl	3	1-2	PTH	unknown	copper	unknown	0.203	2	0	0	0	> 0.800		> 1.803
Plated-Drill_drl	4	1-2	PTH	unknown	unknown	unknown	0.300	15	0	0	0	0.239		0.778

Some holes of the following NPTH drill tools hit functional copper: 1, 2, 3, 4, 5

Number of press stages reported.

Accurate examination of the drill spans to determine the number of pressing cycles required

- The thickness section shows the number of pressing stages based on the layer structure

Thickness				
Buildup Type	Copper Foil		Non-Plated Thickness	0.018 mm
Plated Total Thickness	0.030 mm		Core Thickness	0.300 mm
Plated Foil Thickness	0.018 mm		Prepreg Thickness	0.280 mm
Plating Thickness	0.012 mm		Pressing Stages	2

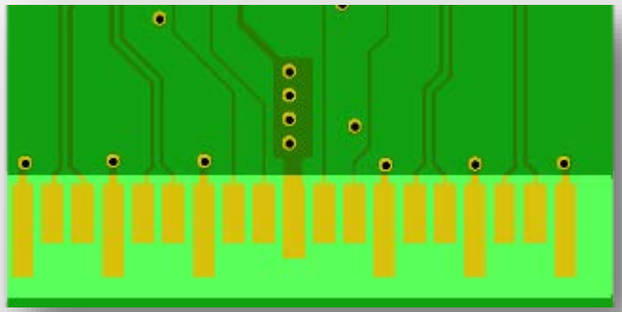
Benefits

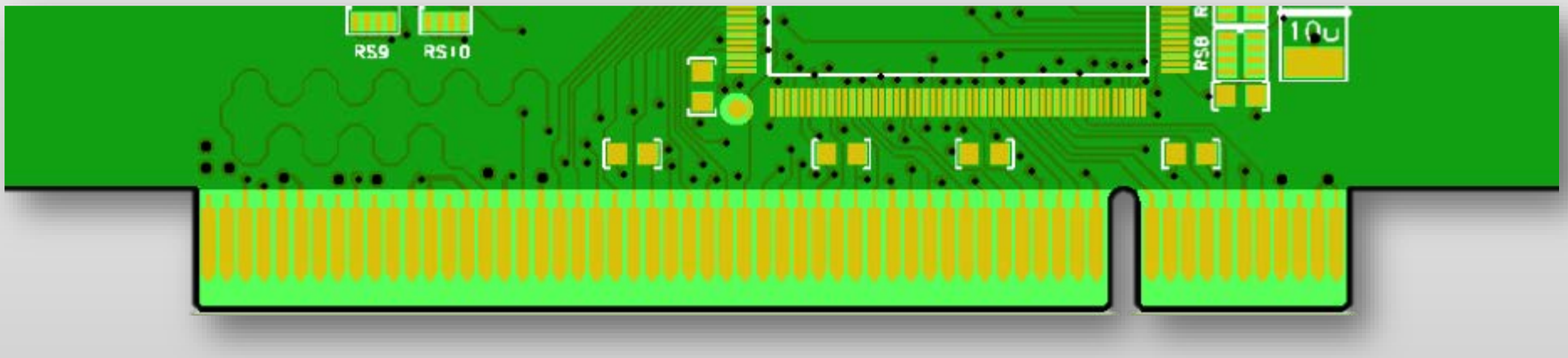
- Greater detail of processes which can affect manufacturing time and cost.
- Improved prediction of bottlenecks
- Potentially identify additional processing steps

Second generation edge-connector recognition.

Based on more feedback from our customers, we have further improved the edge connector recognition module.

More variants are now detected which results in an even more accurate QED report





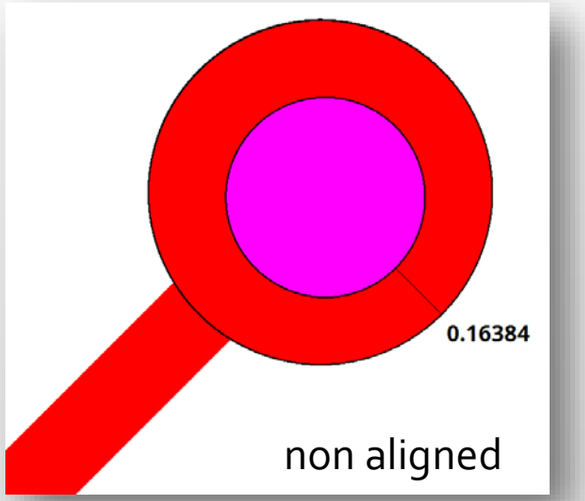
Improved annular ring calculation

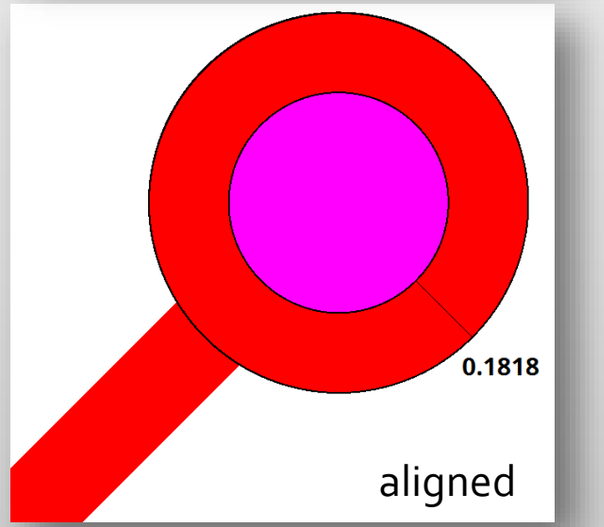
All plated drill holes are automatically snapped to the center of the copper pad

- Copper information from Gerber data typically has a higher resolution than drill information resulting in different center points of flashes

Benefits

- More accurate annular ring analysis
- Less time wasted looking at false issues
- Higher throughput





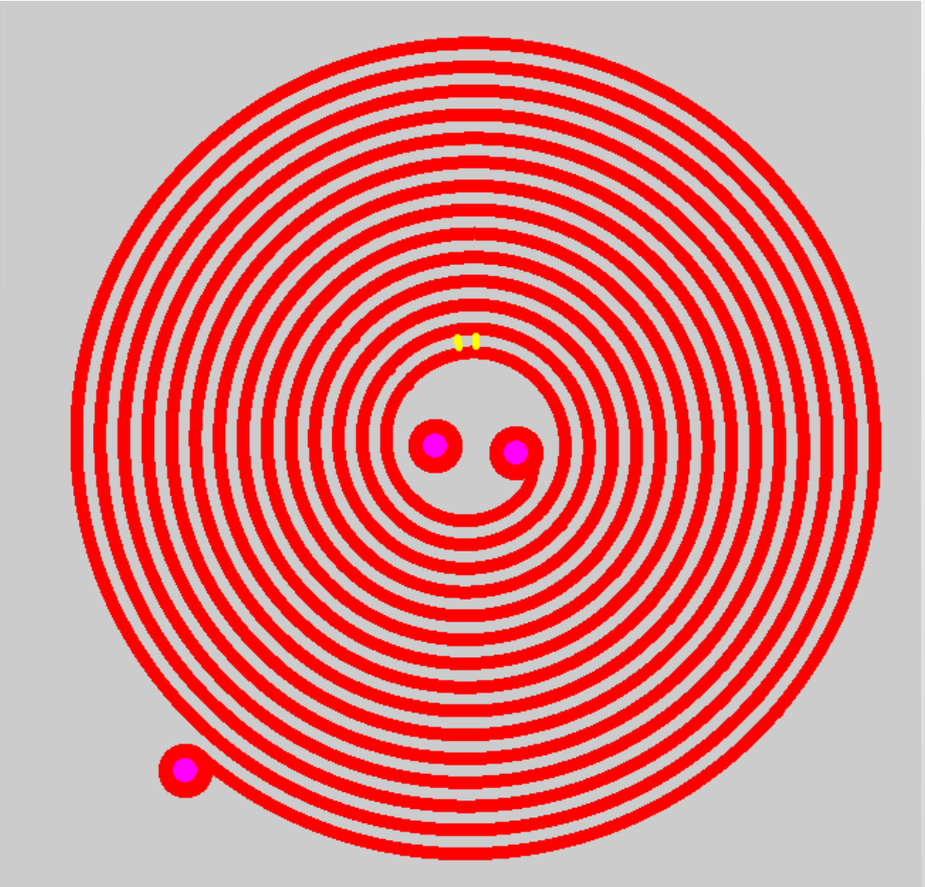
Improved same net spacing calculation

Based on feedback from our customers, our same net spacing calculation has been redesigned

- A new algorithm implemented for determining distances between copper of the same net

Benefits

- Very few false errors resulting in less verification time
- Better detection with accurate results
- Coils defined more accurately
- Higher throughput



Capabilities in QED XML

Capability Classes added to QED XML

Benefits

- Immediate identification of technology class for quotation
- Critical parameter values easily identified
- Easily populates fields in a quotation engine

```
<Capabilities class="8">
  <Rule id="MinClr" group="Track &amp;amp; Gap" name="min Clearance (Track-Track / Track-Pad / Pad-Pad)">0.076</Rule>
  <Rule id="MinTrack" group="Track &amp;amp; Gap" name="min Track Width / min Thermal Gap">0.058</Rule>
  <Rule id="MinOAR2" group="Ring for IPC Class 2" name="min Outer Layer Annular Ring">0.064</Rule>
  <Rule id="MinIAR2" group="Ring for IPC Class 2" name="min Inner Layer Annular Ring">0.062</Rule>
  <Rule id="AspectRatio" group="Aspect Ratio" name="max aspect ratio for Plated hole">7.900</Rule>
  <Rule id="DriCuPthInner" group="Drill - Cu" name="distance Plated hole to Cu on inner layers">0.140</Rule>
  <Rule id="DriCuPthPth" group="Drill - Cu" name="distance Plated hole to Plated hole">0.323</Rule>
  <Rule id="DriCuNpthCuInner" group="Drill - Cu" name="distance Non-plated hole  to Cu on inner layers">0.268</Rule>
  <Rule id="DriCuOuter" group="Drill - Cu" name="distance Non-plated hole to Cu on outer layers">0.268</Rule>
  <Rule id="MaxCuThickness" group="Cu Thickness" name="maximum total Cu thickness that can be etched (no minimum)">-</Rule>
  <Rule id="MarMocTypical" group="Solder Mask" name="solder mask annular ring &amp;amp; track overhang">0.013</Rule>
  <Rule id="Msm" group="Solder Mask" name="solder mask solderweb">0.081</Rule>
</Capabilities>
```

Other important improvements

- Possibility to tailor which checks are performed by customizing the configuration rules
- Introduction of I8 **un**installers.
- Improved recognition of SMD pads. More rectangular shapes with modified corners are imported accurately and recognized as SMDs
- PDF CamReport(s) are generated in the same language as defined for QED PDF reports

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