

# Integr8tor v9.1

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# Integr8tor

Version 9.1



# Introduction

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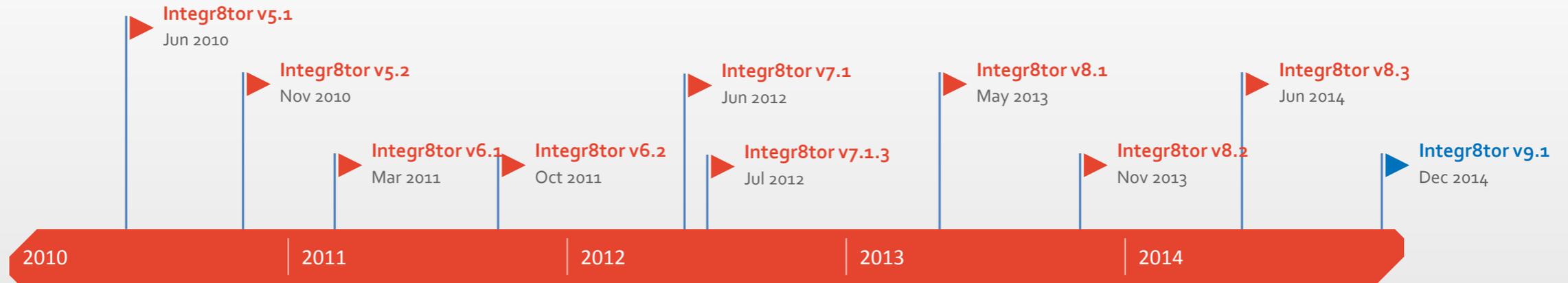
We are pleased to announce the release of Integr8tor version 9.1

Integr8tor v9.1 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 version 9.1 as soon as possible.

# Release history

Commitment to regular updates



Version	Release date	Highlights
5.1	July 2010	<ul style="list-style-type: none"> <li>Multiple job submit via email.</li> <li>CAM input report.</li> </ul>
5.2	November 2010	<ul style="list-style-type: none"> <li>Copper clearances by type.</li> <li>Scoring calculation.</li> </ul>
6.1	March 2011	<ul style="list-style-type: none"> <li>Perspectives in Cockpit.</li> <li>Improved performance.</li> </ul>
6.2	November 2011	<ul style="list-style-type: none"> <li>Multiple QED reports.</li> <li>Exposed copper calculation.</li> </ul>
7.1	June 2012	<ul style="list-style-type: none"> <li>Localized interface.</li> <li>Line width on planes.</li> </ul>
7.1.3 maintenance release	July 2012	<ul style="list-style-type: none"> <li>Bug fix release for 'recovered job'.</li> </ul>
8.1	May 2013	<ul style="list-style-type: none"> <li>Support for ODB++ v7.</li> <li>Compatible with Windows server 2012 and windows 8.</li> </ul>
8.2	November 2013	<ul style="list-style-type: none"> <li>Detection and flagging of duplicate archives.</li> <li>Edge connector recognition.</li> </ul>
8.3	June 2014	<ul style="list-style-type: none"> <li>New standard parameters</li> <li>Determination of laser/mechanical drilling</li> </ul>
9.1	December 2014	<ul style="list-style-type: none"> <li>See release notes</li> </ul>

# Overview

## New Functionality and Enhancements



- Support for Gerber X2 datasets.
- Second generation edge-connector recognition.
- New optimized minimum line width detection algorithm.
- Additional BGA characteristics reported.
- Minimum negative soldermask ring reported.
- Better and faster layer stackup recognition.
- 'Secondary' format support for single job archives with multiple formats.
- More archive extensions are supported

# Support for Gerber X2 datasets



All features from the new Gerber version are fully supported by Integr8tor v9.1

- Datasets are processed much faster compared to Gerber version 1.
- Full, reliable and automatic detection of layer stackup
- More accurate and faster QED values such as:
  - ViaDrill/ComponentDrill/MechanicalDrill/Slot/...
  - Viapad/componentpad
  - SMDpad/BGApad/Fiducial/...
  - Conductors for Impedance
  - Profile/CutOut

The benefits of X2 are clear: faster, more automatic, more accurate

# Support for Gerber X2 datasets



INITIAL	RENAMED	FORMAT	FUNCTION	POSITION
Gerber_PCB_Data_-_Example_2_Legend_Top.gbr	Gerber_PCB_...	gerx2	legend	top
Gerber_PCB_Data_-_Example_2_Soldermask_Top.gbr	Gerber_PCB_...	gerx2	soldermask	top
Gerber_PCB_Data_-_Example_2_Copper_L1_Top.gbr	Gerber_PCB_...	gerx2	outer	1
Gerber_PCB_Data_-_Example_2_Copper_L2_Inr.gbr	Gerber_PCB_...	gerx2	inner	2
Gerber_PCB_Data_-_Example_2_Copper_L3_Inr.gbr	Gerber_PCB_...	gerx2	inner	3
Gerber_PCB_Data_-_Example_2_Copper_L4_Inr.gbr	Gerber_PCB_...	gerx2	inner	4
Gerber_PCB_Data_-_Example_2_Copper_L5_Inr.gbr	Gerber_PCB_...	gerx2	inner	5
Gerber_PCB_Data_-_Example_2_Copper_L6_Inr.gbr	Gerber_PCB_...	gerx2	inner	6
Gerber_PCB_Data_-_Example_2_Copper_L7_Inr.gbr	Gerber_PCB_...	gerx2	inner	7
Gerber_PCB_Data_-_Example_2_Copper_L8_Inr.gbr	Gerber_PCB_...	gerx2	inner	8
Gerber_PCB_Data_-_Example_2_Copper_L9_Inr.gbr	Gerber_PCB_...	gerx2	inner	9
Gerber_PCB_Data_-_Example_2_Copper_L10_Bot.gbr	Gerber_PCB_...	gerx2	outer	10
Gerber_PCB_Data_-_Example_2_Soldermask_Bot.gbr	Gerber_PCB_...	gerx2	soldermask	bottom
Gerber_PCB_Data_-_Example_2_Legend_Bot.gbr	Gerber_PCB_...	gerx2	legend	bottom
Gerber_PCB_Data_-_Example_2_NonPlated_1_10_NPTH_Drill.gbr	Gerber_PCB_...	gerx2	unplated	1-10
Gerber_PCB_Data_-_Example_2_Plated_1_10_PTH_Drill.gbr	Gerber_PCB_...	gerx2	plated	1-10
Gerber_PCB_Data_-_Example_2_Plated_1_2_Blind_Drill.gbr	Gerber_PCB_...	gerx2	plated	1-2
Gerber_PCB_Data_-_Example_2_Plated_2_9_Buried_Drill.gbr	Gerber_PCB_...	gerx2	plated	2-9
Gerber_PCB_Data_-_Example_2_Plated_9_10_Buried_Drill.gbr	Gerber_PCB_...	gerx2	plated	9-10
Gerber_PCB_Data_-_Example_2_Profile_NP.gbr	Gerber_PCB_...	gerx2	cad_outline	none

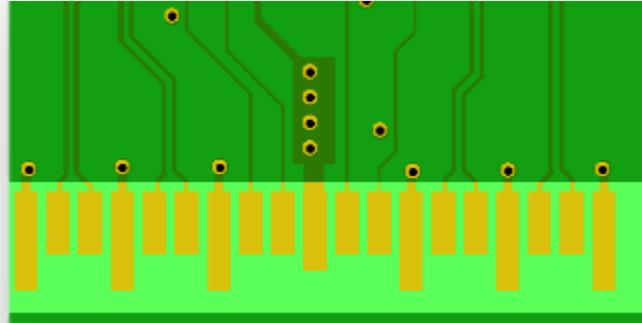
# Second generation edge-connector recognition.



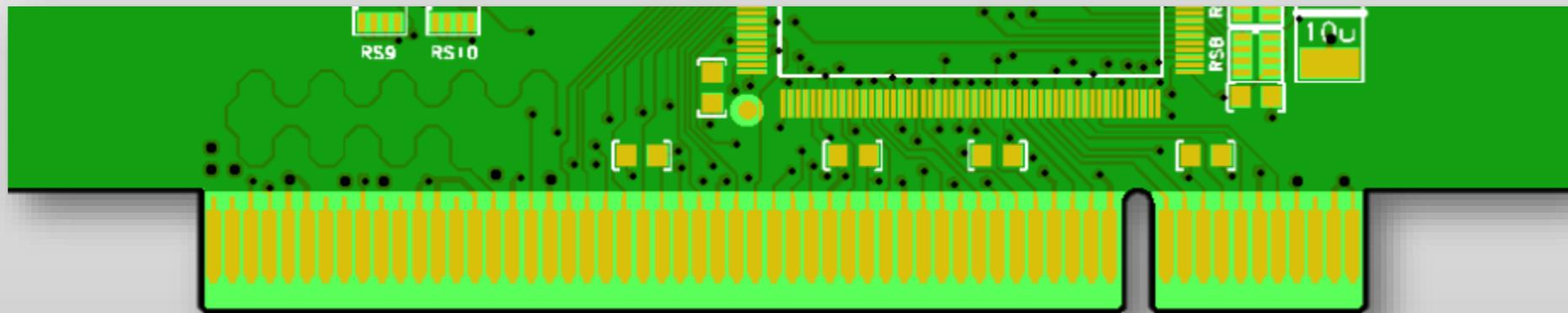
Based on feedback from our customers, we develop a new edge connector recognition module.

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

- Connectors with irregular fingers:



- Connectors from which the fingers are complex pads:



# New optimized minimum line width detection algorithm.



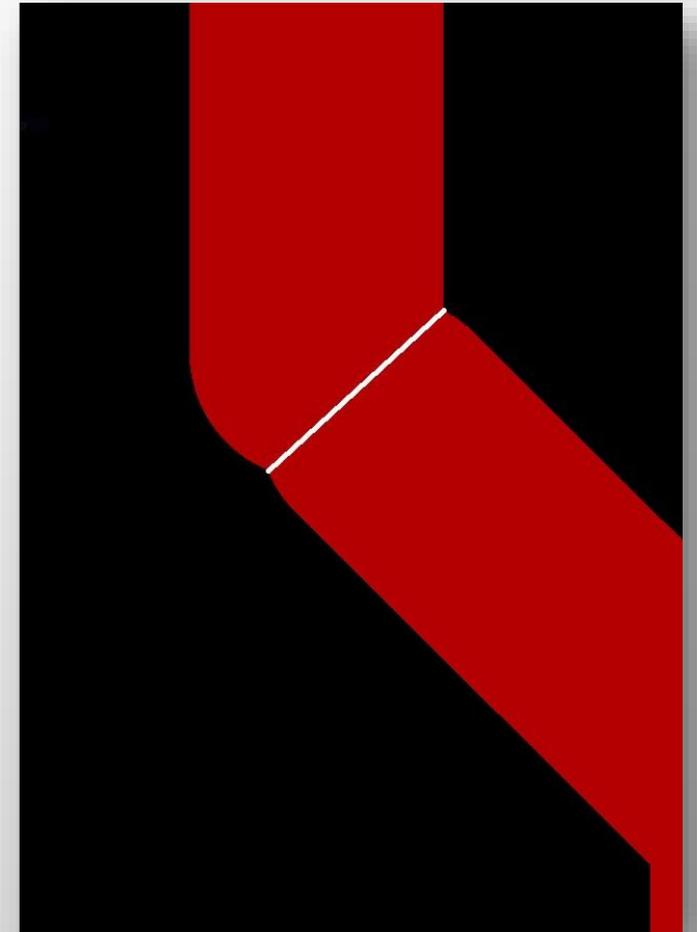
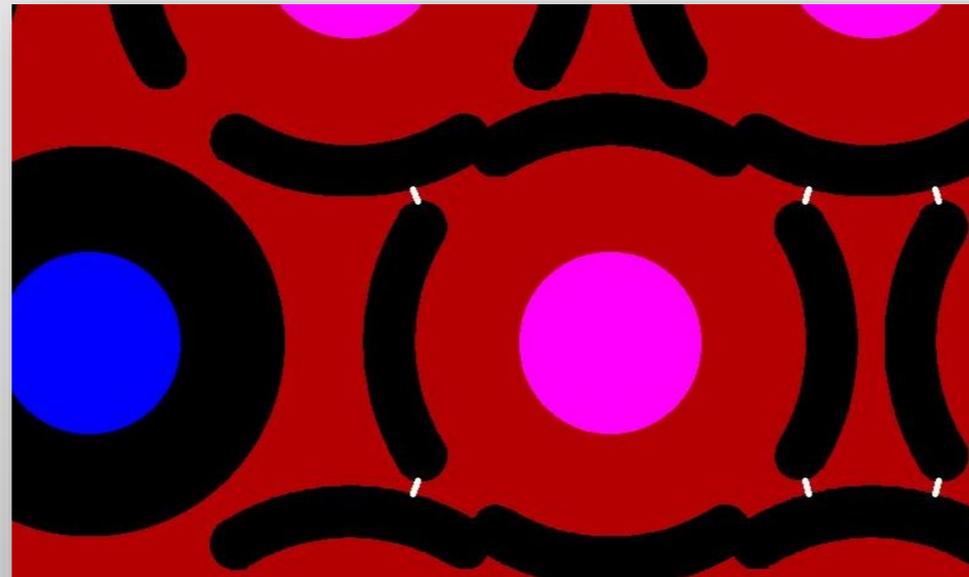
The minimum line width detection could take a long time on heavy jobs.

A complete new algorithm gives a big performance boost on these jobs. Processing times can be reduced by more than 30% depending on the data.

Improved minimum line width detection on curved or cornered data.

Not only has the performance been improved but also in some cases involving copper planes, the accuracy is now higher.

The 2 improvements result in a faster and more accurate minimum line width.



# Additional BGA characteristics reported.



The SMD section has been extended with several new BGA related characteristics.

## Features

- BGA Min. Pitch

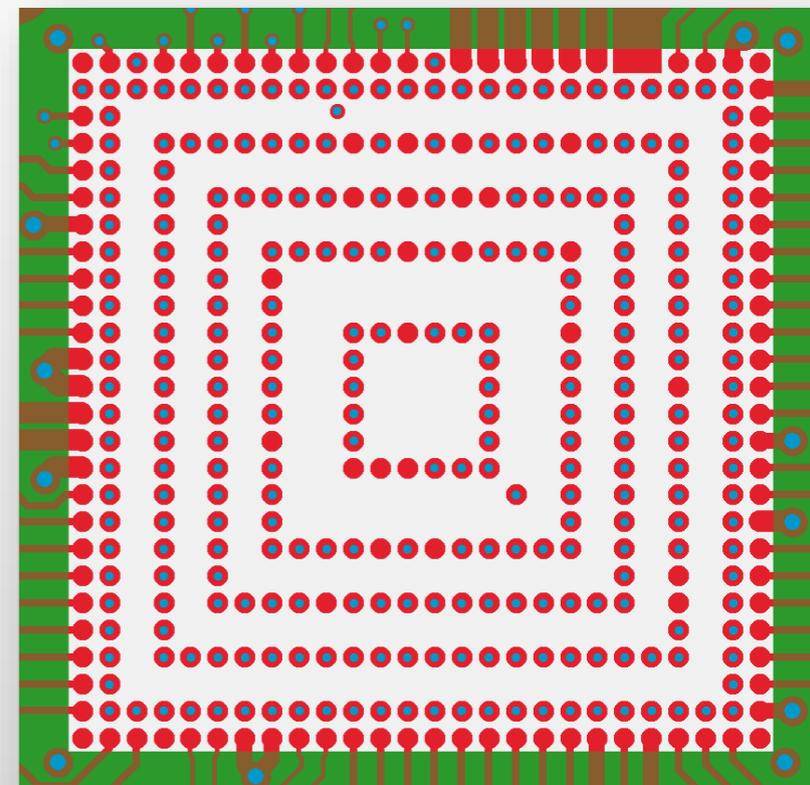
Show the Minimum pitch distance between 2 BGA pads.

- BGA Drilled

Indicates if BGA pads are drilled or not.

## Benefits

- Gives more in depth information about BGA usage and characteristics.



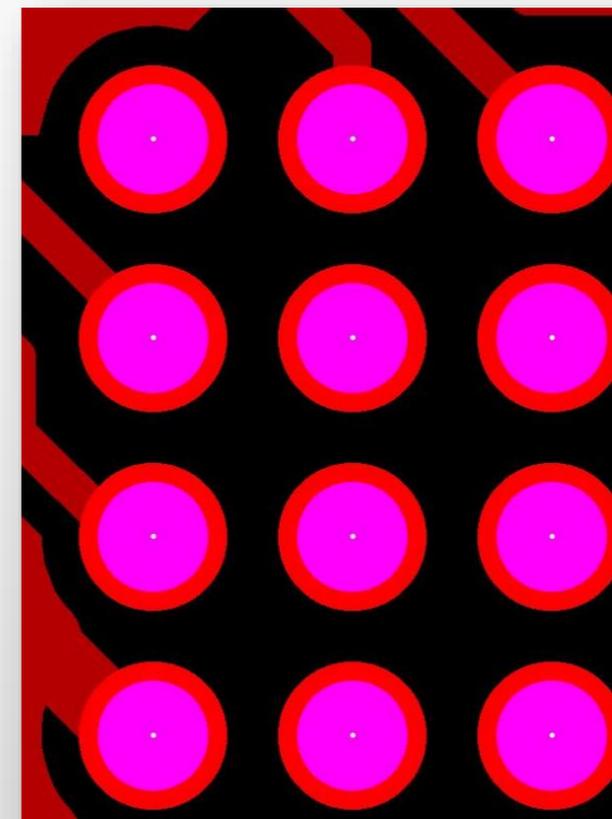
SMD						
Side	Pads (Total)	Excl. BGA Pads	BGA Pads	All Tracks in BGA Centered	BGA Min. Pitch	BGA Drilled
Top	710	317	393	Yes	1.000	Yes
Bottom	695	551	144	Yes	0.800	Yes
All	1405	868	537	Yes	0.800	Yes

# Minimum negative soldermask ring.



The Solder mask section has been extended with a new characteristic.

- In addition to the ring provided for "Non Solder Mask Defined" pads (Positive ring), the ring for "Solder Mask Defined" pads is provided
- For "Solder Mask Defined" (SMD) copper pads where solder mask is on the land of the copper pad, the ring value (or negative ring) of mask on the pad is given.
- Provides earlier detection of issues with "Solder mask defined" BGA and QFP components



Solder Mask					
Side	Min. Positive Ring	Min. Negative Ring	Min. Clr. Mask to Mask	Min. Web	Min. Clr. Mask to Copper
	mm	mm	mm	mm	mm
Top	0.000	0.038	0.094	0.179	0.022
Bottom	0.008	0.038	0.109	0.109	0.007

# Other important improvements



## Better and faster layer stackup recognition

- Our stackup rule database has been extended with a considerable amount of new rules.
- The speed has been drastically improved.

## 'Secondary' format support for single job archives with multiple formats

Sometimes mechanical drawings are provided in different formats other than layer images.

Where we already supported 'secondary' Gerber image conversion in the case of 'primary' DPF or ODB, we now also support the opposite. i.e. converting secondary DPF or ODB files in case the archive comes in primary Gerber format. The converted files being added as extra drawing layers in the job.

A new preference selects whether to have the extra Gerber drawings included with an original DPF job export or not.

## More archive extensions are supported

- Added .taz as supported archive file extension.
- Integr8tor can now deal with extension-less archive names.

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