Integr8tor v2017.12

Release notes
Ucamco NV - Belgium
Integr8tor

V2017.12

Supporting your business to the full
Serving our customer base with regular updates

<table>
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<tr>
<th>Version</th>
<th>Release date</th>
<th>Highlights</th>
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<tr>
<td>7.1</td>
<td>Jun-12</td>
<td>Localized interface.</td>
</tr>
<tr>
<td>7.1.3</td>
<td>Jul-12</td>
<td>Bug fix release for 'recovered job'.</td>
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<tr>
<td>9.1</td>
<td>Dec-14</td>
<td>Support for Gerber X2 datasets.</td>
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<td>2016.04</td>
<td>Apr-16</td>
<td>SMD/BGA pads differentiates copper- and solder mask defined</td>
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<td>2016.12</td>
<td>Dec-16</td>
<td>Introducing Integr8tor Job Perspectives</td>
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<td>2017.05</td>
<td>May-17</td>
<td>Support for PCB Surface finish</td>
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<td>2017.12</td>
<td>Dec-17</td>
<td>Checkpoint review extensions for various QED results</td>
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Feature overview

- **AutoInput – Support for additional file formats**
  - Provide timely service to your customers by automatically reading in their
    - IPC-D-356 B Netlist reference files
    - Supermax – ECAD style drill files

- **Design Analysis – Report different top/bottom solder mask openings**
  - Identify different-size top/bottom solder mask openings on via holes and cater for the extra manufacturing steps in your quotation...

- **Checkpoint – Extended feature review list**
  - Show QC or CAM the areas of particular interest on the board...
    - Copper width (vs. line width)
    - Drilled BGAs and SMDs
    - Stacked Vias
    - Vias with different Top/Bottom solder mask openings
    - Split Track/Track, Pad/Pad, Pad/Track clearances
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**Feature overview**

- **Cockpit - System Admin functions**
  - Log off Integr8tor users who forgot to close their session or who lost connection to the system after a network disruption...
  - Unlock jobs that ended up in a stale situation following a network connection problem...

- **System - Windows Server 2016 support**
  - Let integr8tor follow your IT infrastructure upgrades and run it on Microsoft’s most recent server OS...

- **AutoInput - DXF input for design analysis and board manufacture**
  - Microwave or RF board designs often come as DXF, rather than Gerber...
  - Capture customer DXF manufacturing files and analyse as usual.

*DXF input for design analysis is a licensed feature*
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Feature overview

• **Major performance increase**
  - See your processing times decimated on heavily painted data...
• **Same net clearance analysis**
  > The job-based netlist now used for Same net clearance analysis produces far superior QED analysis results and truthful Checkpoint review locations...

• **Checkpoint for 32-bit operating systems**
  > Get the most out of your IT investments by prolonging the life of your legacy 32-bit client platforms...

• **Checkpoint location scanner**
  > Set the zoom factor of your preference and preserve it while scanning from one location to the next...

• **LibreOffice upgrade**
  > Take advantage of the latest improvements to better render .doc, .xlsx,... and other documentation files in your customer archives...
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Feature overview

- **Stackup recognition enhancements**
  - The extended stackup recognition library gives you more jobs with a correct layer stackup right after input without manual intervention...

- **QED Sequence analysis**
  - The revised section on the QED report supplies extensive information on stacked and overlapping vias in adjacent drill spans
  - Checkpoint’s new review capabilities put you right on the spot...

![Stackup recognition enhancements](image)

![QED Sequence analysis](image)
Extension and Enhancement Details
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AutoInput – Support for IPC-D-356 B netlist files(*)

- Netlist files help capture potential layout changes, introduced unwantedly during data exchange between different systems
- They are essential in the process of safely transferring data between design and manufacturing
- IPC-D-356 B netlist is a widespread format to convey PCB board connections

Integr8tor picks up IPC-D-356 B files automatically during AutoInput and uses them transparently to validate the correctness of the incoming PCB layout data

(*) this is a licensed option
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AutoInput – Support for SuperMax – ECAD style drill files

- SuperMax – ECAD is a legacy suite of design tools from Dansk Data Elektronik – EDA A/S (DDE-EDA)
- Drill files in a DDE-EDA PCB manufacturing set feature a very specific logic for assigning diameters to tool numbers
- AutoInput captures this advanced tool assignment logic and reads in DDE-EDA data sets fully automatically
- Higher throughput with fewer data sets requiring manual tool assignment
- No extra license required – free of charge for customers with a valid maintenance contract
Different-size top/bottom solder mask openings on via holes requires additional manufacturing steps or special solder resists and potentially impacts on the request for quotation.

During final inspection, quality control (QC) may take a special interest in knowing where on the board this situation occurs.

QED design analysis flags the presence of different-sized top/bottom solder mask openings in an extra column of the solder mask analysis section.

<table>
<thead>
<tr>
<th>Side</th>
<th>Min. Ring on Cu Defined Pads (mm)</th>
<th>Min. Ring on SM Defined Pads (mm)</th>
<th>Min. Clr. Mask to Mask (mm)</th>
<th>Min. Web (mm)</th>
<th>Min. Clr. Mask to Copper (mm)</th>
<th>Fully Covered Via Holes</th>
<th>Partly Covered Via Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top</td>
<td>0.002</td>
<td></td>
<td>0.250</td>
<td>0.025</td>
<td>0.000</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Bottom</td>
<td>0.100</td>
<td></td>
<td>&gt;0.250</td>
<td>0.000</td>
<td>0.000</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>All</td>
<td>0.002</td>
<td></td>
<td>0.250</td>
<td>0.000</td>
<td>0.000</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Higher board complexity comes with an increased need for locating and reviewing certain aspects of the design.

CAM and Quality Control often require the location info of advanced board characteristics, to focus on during single image data preparation or final inspection.

Checkpoint’s revised feature review list helps you locate a wealth of new design characteristics on the board with ease:

- Split Track/Track, Pad/Pad, Pad/Track clearances (*)
- Copper width (vs. line width)
- Drilled BGAs and SMDs
- Stacked Vias
- Through-hole vias with different Top/Bottom solder mask openings (“Half-Mask Through-Hole Vias”)

(*) = requires an edit of your existing Checkpoint configuration file. Contact our helpdesk if you are interested to see the copper clearance split…
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Cockpit – New System Admin functions

- Users easily forget to log off their Integr8tor Cockpit session when it is going to be inoperative for a longer period of time.
- Network or VPN instability can cause user connections to the server being cut, without the session being properly terminated.
- As a result, jobs in the JobQueue may end up locked.

- 2 new cockpit functions have been added to elegantly remedy these situations:
  - **UNLOCK** – conveniently located on the Cockpit > JobQueue toolbar to unlock locked jobs – Admin rights required.
  - **Log off** – in the Preferences > Configuration > Users pane to terminate stale user sessions – Admin rights required.
Microsoft Windows Server 2016 has been added to the list of supported platforms for hosting the Integr8tor server software.

Free of charge - no migration or administrative fees for customers with a valid maintenance contract.

Check out the updated version of the Ucamco software installation requirements document on our website or our ftp download server.
Microwave and HF boards are often designed using “non-standard” design packages.

Manufacturing output from these packages tends to be DXF rather than Gerber.

Collecting QED data from this type of customer archives was not supported so far.

Customer archives with fabrication layout data in DXF can now be read in, analysed and quoted for, just like regular Gerber archives.

High-accuracy DPF files can be exported for further processing in CAM.

(*) this is a licensed option
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Enhancements – Major performance increase

- v2017.12 features a thoroughly redesigned design analysis workflow and raises performance to unprecedented levels

Heavily painted data, data with minute gaps in the painting and/or crosshatched layers in particular are showing **dazzling reductions of the processing time**

**Performance gains of 300%** and more are no exception!!

- Pack your Integr8tor server with **V12 power** and slash processing times on the most time-consuming of your jobs

- Extract the same, field-proven, reliable QED data at stunning speeds and get your quotation out before anybody else can

» We try harder «
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Enhancements – Major performance increase

Some statistics from an extensive test suite with real-life customer data sets...

<table>
<thead>
<tr>
<th>Archive name</th>
<th>Data type</th>
<th>Processing time before speedup</th>
<th>Processing time after speedup</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFQP251587</td>
<td>cross-hatched</td>
<td>8h09min</td>
<td>19min</td>
</tr>
<tr>
<td>RFQP244914</td>
<td>cross-hatched</td>
<td>3h13min</td>
<td>2h24min</td>
</tr>
<tr>
<td>HPI0284AgerberAscii_A04</td>
<td>cross-hatched</td>
<td>&gt;16h</td>
<td>18min</td>
</tr>
<tr>
<td>quote_data</td>
<td>cross-hatched</td>
<td>5h53min</td>
<td>34min</td>
</tr>
<tr>
<td>era3930</td>
<td>painted</td>
<td>60min</td>
<td>27min</td>
</tr>
<tr>
<td>505-10295</td>
<td>painted</td>
<td>5h39min</td>
<td>3h41min</td>
</tr>
</tbody>
</table>
Earlier revisions of Integr8tor were considering layer-based netlist to establish whether or not 2 objects belong to the same net.

Copper objects connected via plated drill holes and a copper connection on a different layer were excluded from same net clearance reporting.

In specific configurations of data, this could lead to a sub-optimal locations review list in Checkpoint.

Same net clearance analysis has been reviewed to use a job-based netlist for the highest possible accuracy in the QED results.

No more “false calls” on same net clearance statistics.
Earlier software revisions tied the use of Checkpoint to a 64-bit environment

Many cockpit clients still run on 32-bit hardware/operating system

Leave the option “Use Preinstalled Checkpoint/DFM Review” unchecked and let the system decide whether the 32 or 64-bit Checkpoint is required

Protect your earlier IT investments and prolong the lifetime of your legacy 32-bit client platforms...
Previously Checkpoint was imposing the zoom factor to be used for scanning through the design locations.

On smaller designs this was compromising an optimum user experience.

Set the zoom of your preference on the first location to visit and maintain it throughout the rest of the scan.

Enjoy an uncomplicated and pleasant tour around the areas of interest on the board.
Enhancements – LibreOffice upgrade

LibreOffice is a third-party package within Integr8tor used for consistent and uniform viewing of Office-like documents contained within a customer archive.

The newly embedded LibreOffice 5.4.3.2 offers wider support for various document types and better Microsoft Office file compatibility.

Open and view all board-related customer documentation from within Integr8tor and let no instruction or detail escape your attention.
A correct layer stackup is mandatory for an accurate QED report.

Fully automatic recognition of layers and their function within the PCB greatly contributes to timely analysis results and the shortest possible response time to your customer’s RFQ.

Integr8tor’s stackup recognition intelligence database has been further extended to capture even more layer stackup makes and models fully automatically.

See more of your customer archives go from start to finish in one uninterrupted, automatic flow.
Sequence analysis section carries vital information on stacked or overlapping vias in different drill runs.

Sometimes these drill hole overlaps are intended, sometimes they flag a flaw in the board design.

To correctly assess the situation, Sequence Analysis features full details of which copper layer, drill files, tool numbers and tool diameters are involved in the situation.

Combine it with Checkpoint’s new review capabilities to locate stacked and overlapping vias on the board.
We have also taken great care in fixing the items below for you and hope this will contribute to an even better user experience...

- When starting QED Edit from the Job Editor, the application was suffering from an incomplete display of the list of customer parameters.
- When the incoming data was supplied as a customer panel and Sizes Editor was used to designate the base image, the results of a subsequent analysis was still as per the complete customer panel for everything relating to drills.
- In earlier revisions of the software, incoming archives without graphical data could still be taken into Dynamic Panel Optimizer (DPO) to enter a theoretical PCB size, with which the software would then calculate the list of possible customer and/or production panels. This functionality was broken at some stage and has been restored in this release.
- When you had different views/layouts and happened to close the QED report in one of them, it did no longer show in the Add View dropdown and so it was impossible to get it back.
- The ability to add an empty copper layer to a job in the layer structure editor has been restored.
Solder mask or legend layers that are aliased to a different function/subclass are now correctly displayed in Checkpoint again.

The input remarks section could sometimes contain a reference to the variable @NAME, while in fact the actual layer name was intended. This problem has been corrected.

Archive file names without an extension will no longer cause a null pointer exception.

An Cockpit issue related to language settings not being properly propagated has been addressed.

Laser drill sequences are correctly output into the PPD (PCB Production Data) XML output.

In very specific cases, line width detection was reporting an incorrect value. This has been fixed.

A case where Modify Job was causing a Java null pointer exception has been corrected.

Certain archives combining both ODB and Gerber data could trigger an IllegalArgumentException, leaving the Cockpit file list without any entries. This is no longer the case.
Exact contourization has been ruggedized for better performance on specific data sets.
The calculation of the total number of drill hits required to create the slots on a board (nibble count) has been revised and is now yielding more accurate results.
Notes or comments potentially provided via the PDF input form are now correctly propagated to the system.
The route from Integr8tor to Polar SpeedStack and back using the .stkx interface format has been restored.
Edit QED is no longer displaying a white font on top of a white background in the comments section.
Modifying values using the “Edit QED” function on the File List tab page in Cockpit is now correctly updating the associated fields again, causing the edits to be persistent.
Rout layers input from an ODB++ data set now feature the correct layer alias information.
The mechanism for sending a job from Integr8tor to Ucam via the “To Ucam” function on the File List tab page in Cockpit has been overhauled to provide a smoother user experience.
And many more...
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General information

- The installer can be downloaded from ftp://ftp.ucamco.com/Integr8tor
- We recommend you to install this update at your earliest convenience
- For any further questions you may have, please contact our local business partner or the Ucamco helpdesk
- We thank you for choosing a Ucamco product
Ucamco wishes you a merry Christmas and a happy and prosperous 2018.
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