

SMS 7.9.2 Features

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October 2011

Manufacturing Output Automation (MOA)

Manufacturing Outputs

■ Manufacturing Output Automation

— Configuration

- Configure design for each specific output from single location
- Store schemes in company specific central location
- Add Pre/Post processes for additional user customization
- Specify user defined locations for output files

— Generation

- Batch mode to generate all required outputs from a central location
- Push button solution
- Repeatable and consistent process
- Delivers a solution that all customers can utilize

Manufacturing Outputs

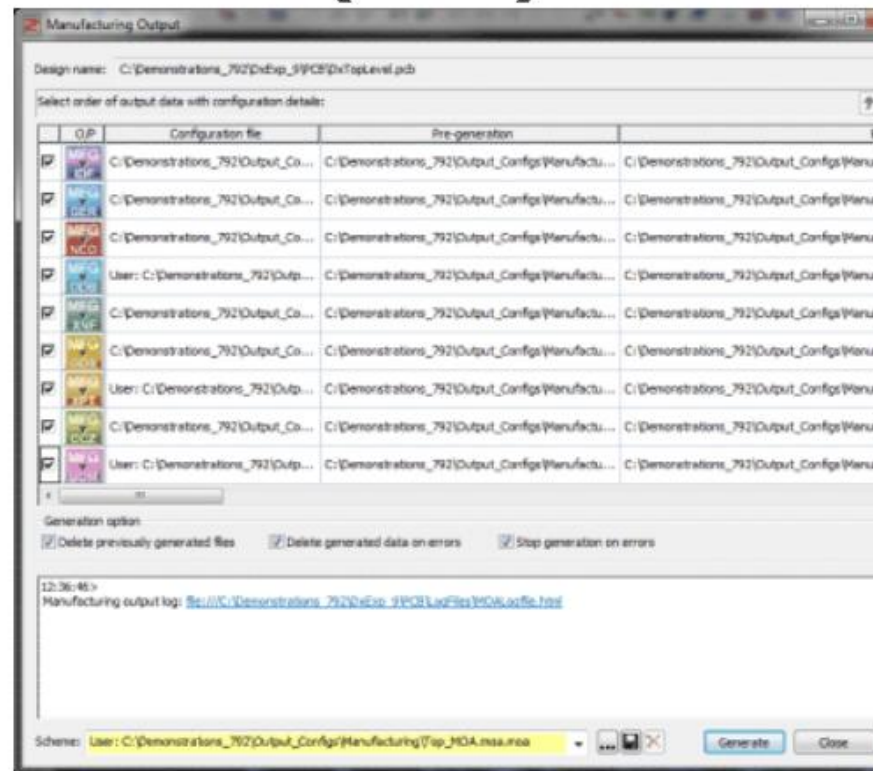
■ Manufacturing Output Automation (MOA)

— “Configure” mode

- Configure design for each specific output
- Store schemes in central location
- Supports Variant data
- Add customized Pre/Post processes

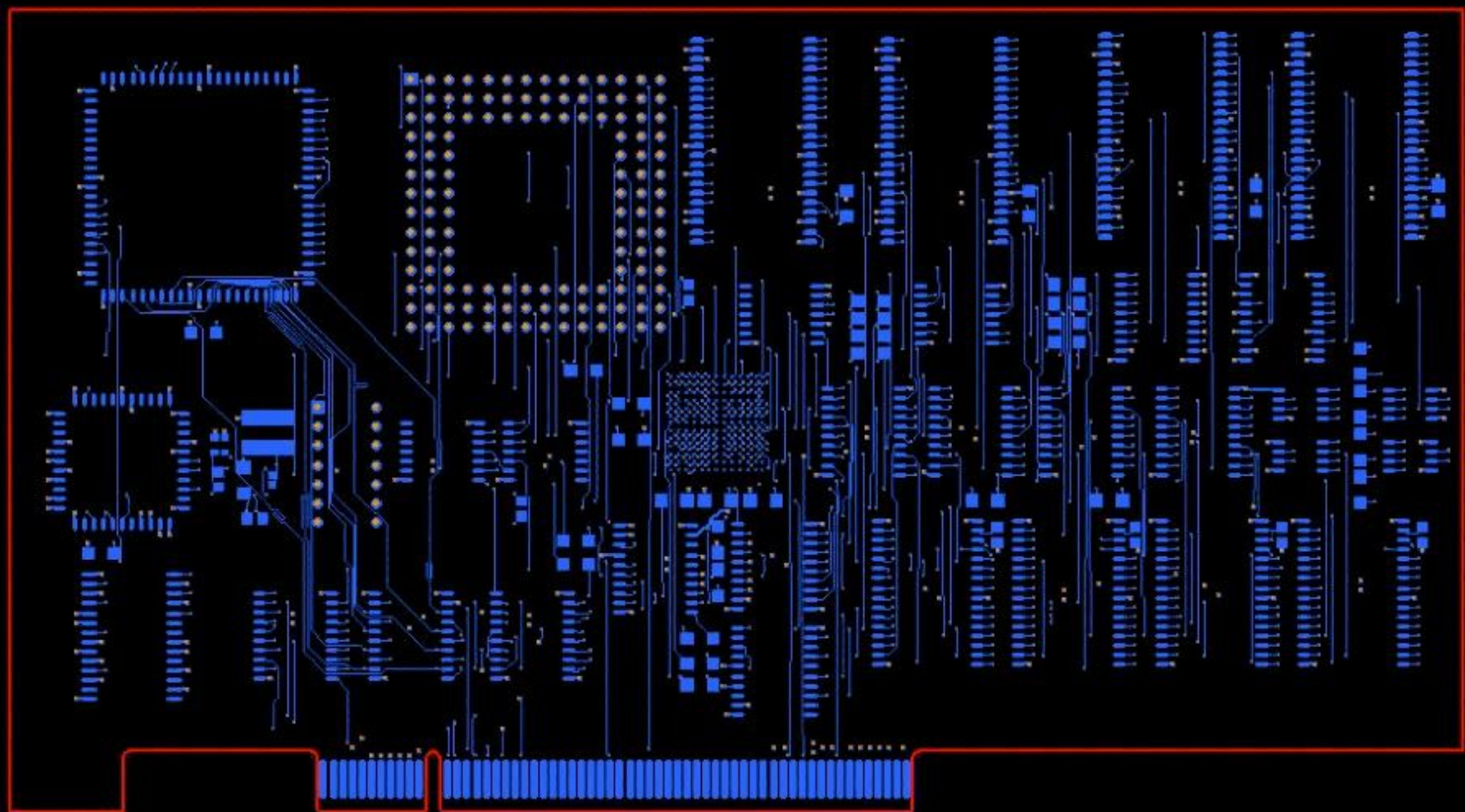
— “Generate” mode

- Batch mode to generate all required outputs from a central location
- Push button solution
- Repeatable and consistent process





Loc: Layer 1 (TOP)



- 1 Help
- 2 Fanout
- 3 Plow / Multi
- 4 Toggle Gloss
- 5 Plane Sketch
- 6 Undo
- 7 Tune
- 8 Route
- 9 Reroute
- 10 Push Trace
- 11 Gloss
- 12 Place >>

Select 1V. 6H Gloss On

Drawing Automation

Drawing and Documentation

- Drawing creation and automation
 - Targeted at automating the process of generating manufacturing drawings
 - Currently a manual process
 - No out of the box solution
 - Customers reliant on developing custom Automation solution (Ample code in BoardStation flow)
 - Create the drawing quickly in a repeatable and consistent manner
 - Provide automated but customizable solution that is fully supported and maintained
 - Delivers a solution that all customers can utilize

Design and Cell Placement

■ Drawing Setup

- Automatically place cells at user defined X-Y locations
 - Title block cells
 - Revision tables
 - Any Drawing cells
 - Mechanical cells
 - Notes
- Automatically place PCB or Panel designs in sheets requiring them
- Replaces 3 separate dialogs

Specify PCB(s) or Panel to be placed

Specify Sheet names, sheet numbers, and assign display schemes

The screenshot shows the 'Drawing Setup' dialog box with three main sections:

- Sheet Creation:** A table listing sheet names, numbers, and display schemes.
- Cell Placement list for sheet 'Stencil (TOP)':** A table for defining cell names and their X-Y locations.
- Board/Panel Placement list for sheet 'Stencil (TOP)':** A table for defining PCB/panel placement parameters like design directory, display scheme, variant, center, scale, location, flip, rotation, array placement, and rows.

Callouts point to specific areas: 'Specify Sheet names, sheet numbers, and assign display schemes' points to the Sheet Creation table; 'Specify Cell names and locations' points to the Cell Placement list; 'Assign schemes, variants, location, and arrays for PCB' points to the Board/Panel Placement list.

Sheet Name	Sheet Number	Display Scheme
ART_B01	4	Loc: All On-Assy
ART_TOP	5	Loc: All On-Assy
ART_SOLDERMASK_...	6	Loc: All On-Assy
ART_SOLDERMASK_...	7	Loc: All On-Assy
ART_TITLE_A	8	Loc: All On-Assy
Stencil (TOP)	9	Loc: All On-Assy
Stencil (BOTTOM)	10	Loc: All On-Assy
MASTER DRAWING	1	Loc: All On-Assy
ASSEMBLY (TOP)	2	Loc: All On-Assy
ASSEMBLY (BOTTOM)	3	Loc: All On-Assy
PANEL DRAWING	11	Loc: All On-Panel-Drill

Cell Name	X Location	Y Location	Relative To Design	Rotation (deg)
D2DWGF	1000	450	<input type="checkbox"/>	0

Design Directory	Display Scheme	Variant	Center	Scale	X Location	Y Location	Flip	Rotation (deg)	Array Placement	Rows
C:\Demonstrations_792\Exp_9\Panel ...	Loc: Stencil Top	<input type="checkbox"/>	<input type="checkbox"/>	1	1500	1900	<input type="checkbox"/>	0	<input type="checkbox"/>	1

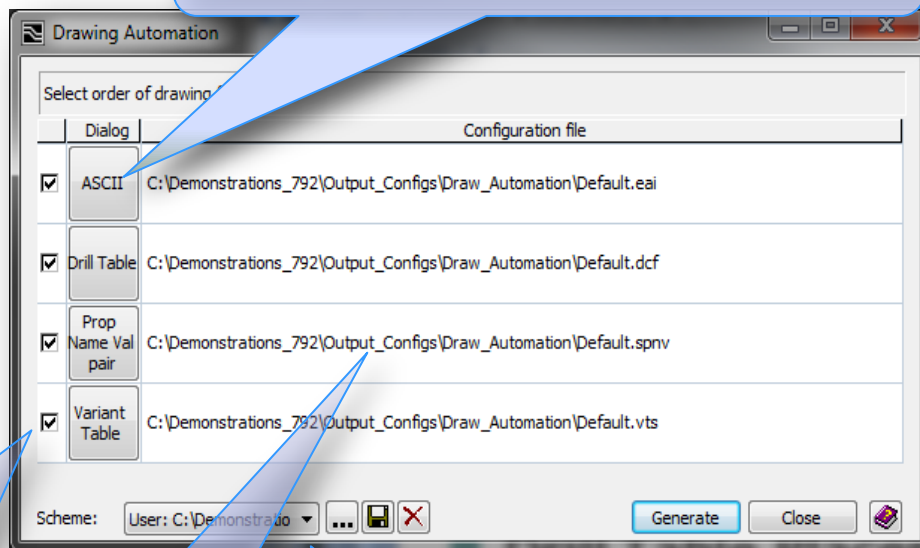
Specify Cell names and locations

Assign schemes, variants, location, and arrays for PCB

Multiple Automated Tasks

■ Drawing Automation ...

- A single dialog to automate:
 - **ASCII file** placement (notes, labels, table data, etc.)
 - **Drill table** placement (all spans to single table, or table by span)
 - **Prop Name Value** assignment
 - **Variant Table** placement
- Enabled through FabLink XE Pro license



.... Select (check) all, or specific automation processes

.... Configuration files can be in a network location

.... Save Automation schemes for specific project configurations

Extended Print and PDF

Extended Print

■ “Sheets Setup” tab

- Allows copying existing sheets, or change the order in the list
- Addresses “**Layer Ordering**”, for order-critical display control output, such as displaying copper pads on top, *then* Soldermask under them

“Check” to apply layer ordering to the output

Ordered list, first layer on top of next in the list, and so on...

Selectable order

Advanced Setup

Sheet Name	Layer Order	Header Text	Footer Text
<input type="checkbox"/> Assy_top	<input type="checkbox"/>		
<input type="checkbox"/> SM_Var_2	<input type="checkbox"/>		
<input type="checkbox"/> Silk_Bottom	<input type="checkbox"/>		
<input type="checkbox"/> SM_Var_1	<input type="checkbox"/>		
<input checked="" type="checkbox"/> layering_1	<input checked="" type="checkbox"/>	This is my header	This is the footer
<input checked="" type="checkbox"/> layering	<input checked="" type="checkbox"/>	This is my header	This is the footer
<input type="checkbox"/> Drill_1-2	<input type="checkbox"/>		
<input type="checkbox"/> Drill_7-8	<input type="checkbox"/>		
<input type="checkbox"/> Drill_Thru	<input type="checkbox"/>		

Drill_Thru	SM_Var_1	SM_Var_2	Silk_Bottom	layering	layering_1
Assembly - Top	Assembly - Top	Assembly - Top	Assembly - Top	Lyr 6	Lyr 6
Assembly - Bottom	Assembly - Bottom	Assembly - Bottom	Assembly - Bottom	Lyr 5	Lyr 5
Silkscreen - Top	Silkscreen - Top	Silkscreen - Top	Silkscreen - Top	Lyr 4	Lyr 4
Silkscreen - Bottom	Silkscreen - Bottom	Silkscreen - Bottom	Silkscreen - Bottom	Lyr 3	Lyr 3
Board Origin	Board Origin	Board Origin	Board Origin	Lyr 2	Lyr 2
NCDrill Origin	NCDrill Origin	NCDrill Origin	NCDrill Origin	Lyr 1	Lyr 1
Drill Drawing - Through	Drill Drawing - Through	Drill Drawing - Thro...	Drill Drawing - Through	Assembly - Top	Assembly - Top
Holes	Holes	Holes	Holes	Assembly - Bottom	Assembly - Bottom
Top	Top	Top	Top	Silkscreen - Top	Silkscreen - Top
Bottom	Bottom	Bottom	Bottom	Silkscreen - Bottom	Silkscreen - Bottom
Solderpaste - Top	Solderpaste - Top	Solderpaste - Top	Solderpaste - Top	Board Origin	Board Origin
Solderpaste - Bottom	Solderpaste - Bottom	Solderpaste - Bottom	Solderpaste - Bottom	NCDrill Origin	NCDrill Origin
Soldermask - Top	Soldermask - Top	Soldermask - Top	Soldermask - Top	Drill Drawing - Through	Drill Drawing - Through
Soldermask - Bottom	Soldermask - Bottom	Soldermask - Bottom	Soldermask - Bottom	Holes	Holes
Cavity	Cavity	Cavity	Cavity	Top	Top

Extended Print

■ Header and Footer Output (PDF) ...

- Left, center, and right (for top and bottom) are separately definable

The image displays a software interface for PCB layout automation. On the left, a 'Layers' panel lists 'Assy_top background', 'Board Outline', and 'Assembly - Top'. In the foreground, a 'Header & footer contents' dialog is open, showing configuration options for header and footer text. The dialog has columns for 'Left', 'Center', 'Right', and 'Font'. The 'Header' row is configured with 'Company Name' in the center and 'Sheet Header' on the right. The 'Footer' row is configured with 'Design Name' in the center and 'Page Number' on the right. In the background, a PDF printout of a PCB layout is visible, featuring a green board outline, a red rectangular selection box around a central component area, and text blocks at the top and bottom of the page. The top text includes 'Mentor Graphics Corporation' and contact information. The bottom text includes 'DrTopLevel' and the page number '1'.

Header & footer contents

	Left	Center	Right	Font
Header	<input checked="" type="checkbox"/>	Company Name	Sheet Header	...
Footer	<input checked="" type="checkbox"/>	Design Name	Page Number	...

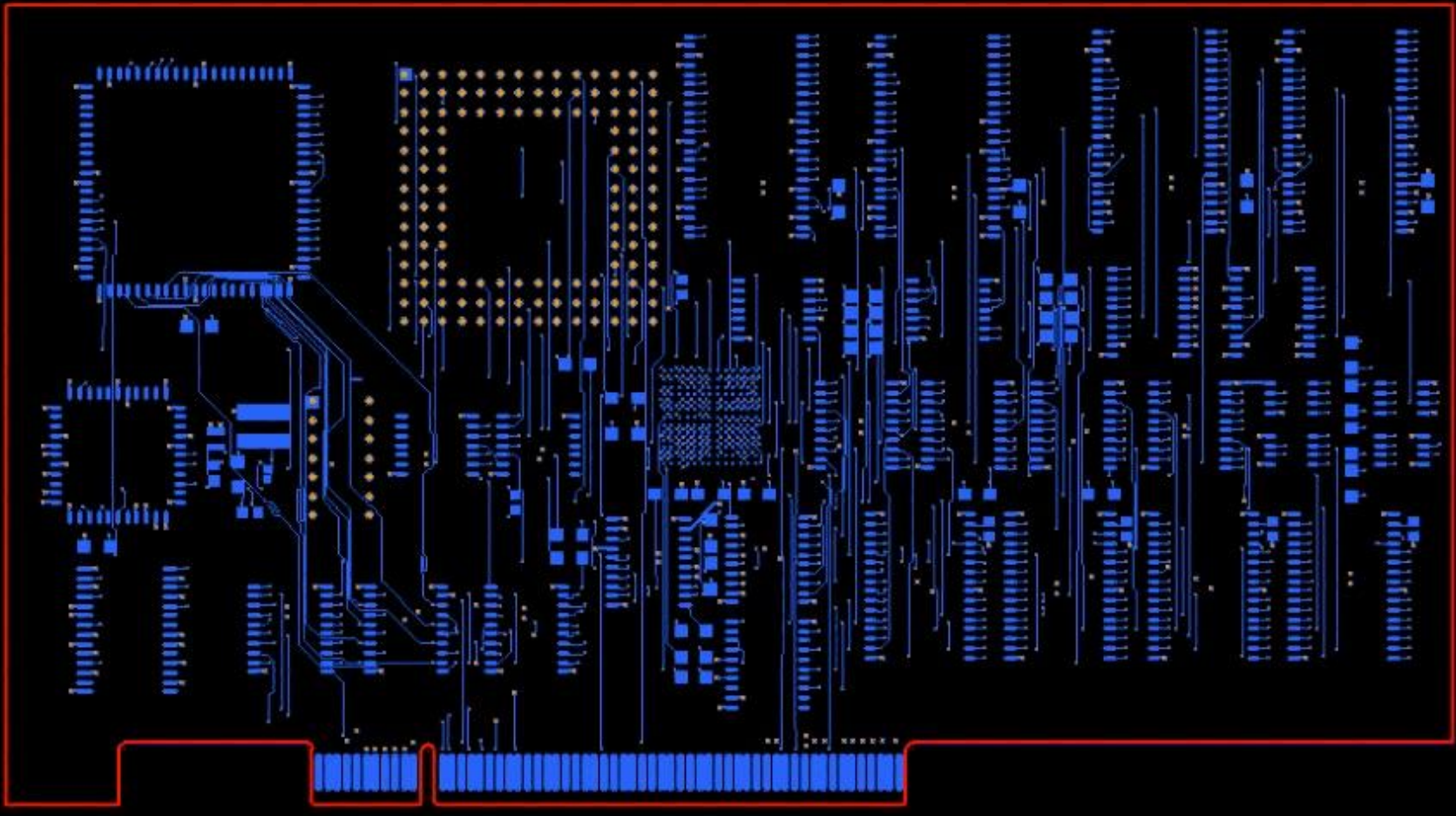
Two executions of the tool could be used to simulate collaboration. Prospective product developers can use this to learn about message construction and composition. Established product developers could use this to support new data types.

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A previous interactive collaboration is played back using command line execution of the tool for each step. The recorded log files drive the tool to repeat a previous edit. The actions should allow variability in the data models and message construction. Each collaboration step should have validation results. At a minimum they should either succeed or fail. Detail for comparison would be better possibly in the generation of a new log file.

DrTopLevel 1



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