



**Altium**®

# New Age of communication for Electronics Design & Development

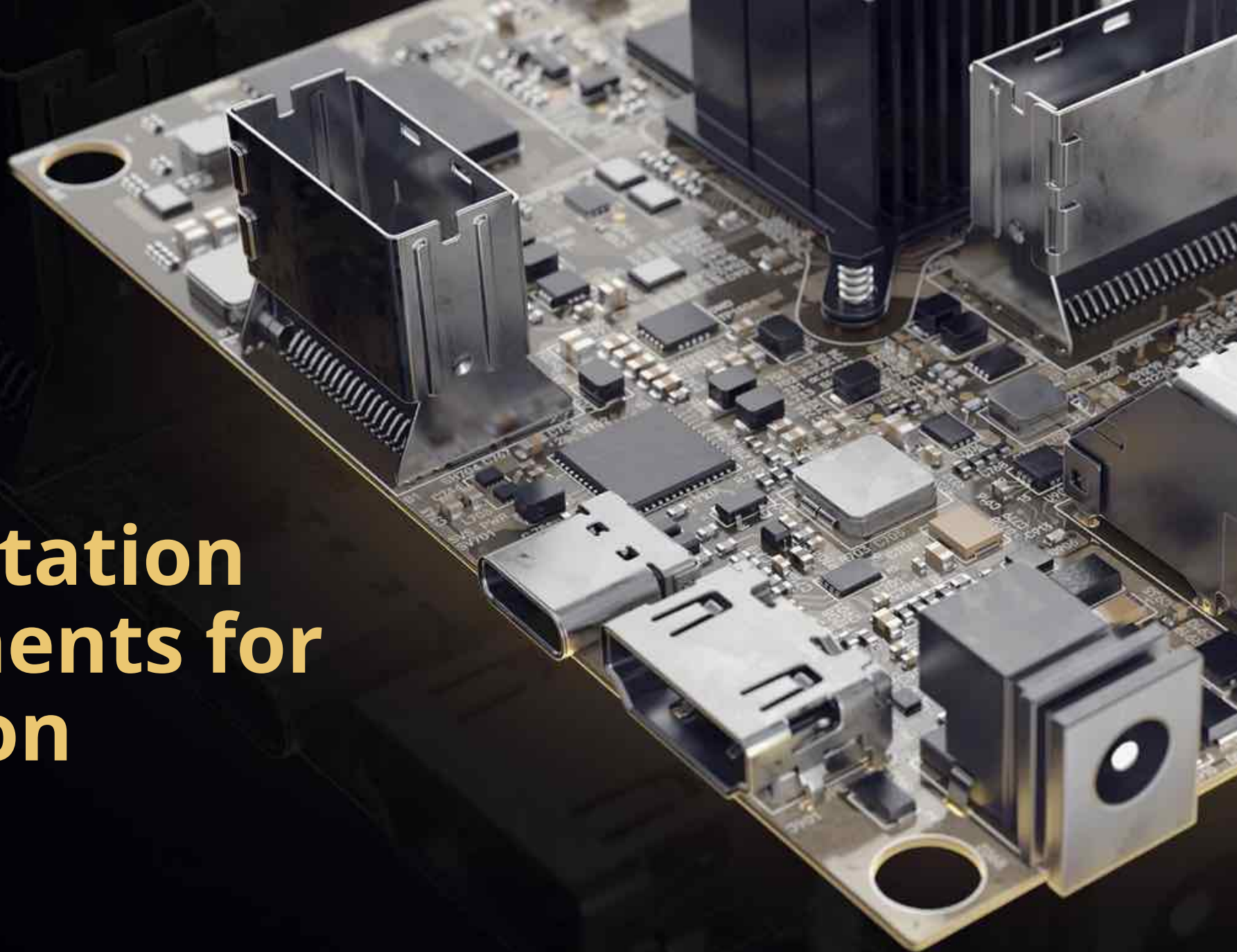
**Carsten Kindler**  
Manager FAE EMEA  
Altium Europe

**Helsinki**  
May, 17<sup>th</sup> 2019

- **Documentation Requirements for Fabrication**
- Altium Designer - Draftsman
- **Communication between Design & Manufacturing**
- Altium 365

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# Documentation Requirements for Fabrication





# Files Required for PCB Fabrication

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- **Gerber Files (RS-274-X or RS-274-D format) - (Valor ODB++ file optional)**
  - All copper layers (including inner and outer layers)
  - Solder mask layers - Silkscreen/Legend layers
  - Solder paste layers (for board Assembly)
- **Drill file with tool codes and X-Y coordinates for all holes (ASCII or EIA format).**
- **IPC-D-356 netlist (used for continuity testing).**
- **Readme File containing Engineering contact information and any special instructions.**
- **Fabrication drawing**

# Elements Required in a PCB Fabrication Drawing

- **Title Block with Part Number and Revision**
- **Mechanical drawing with dimensions**
  - Single unit
    - With or without rails
  - Multiple-up array with rails for Assembly
    - Includes arrays designed with required spacing for testing
- **Layer stack-up**
  - Material type and order
  - Overall, Layer copper, special dielectric thicknesses
  - Controlled impedance, if required
- **Drill Chart and Table**
- **Fabrication Notes**

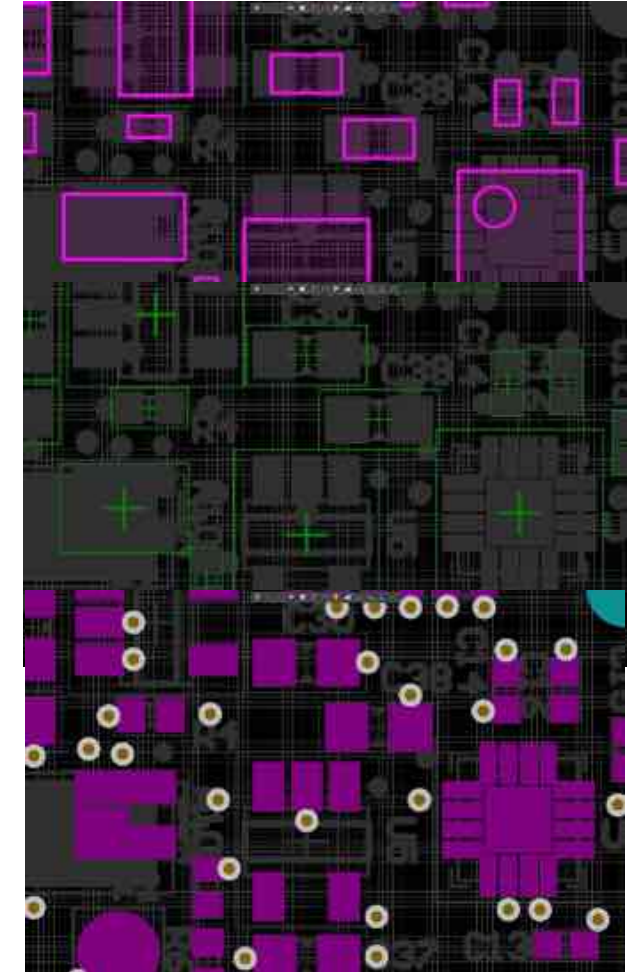
# Drawing Problems

## Many layers

- Adds clutter to workspace
- Slows tool with addition design data

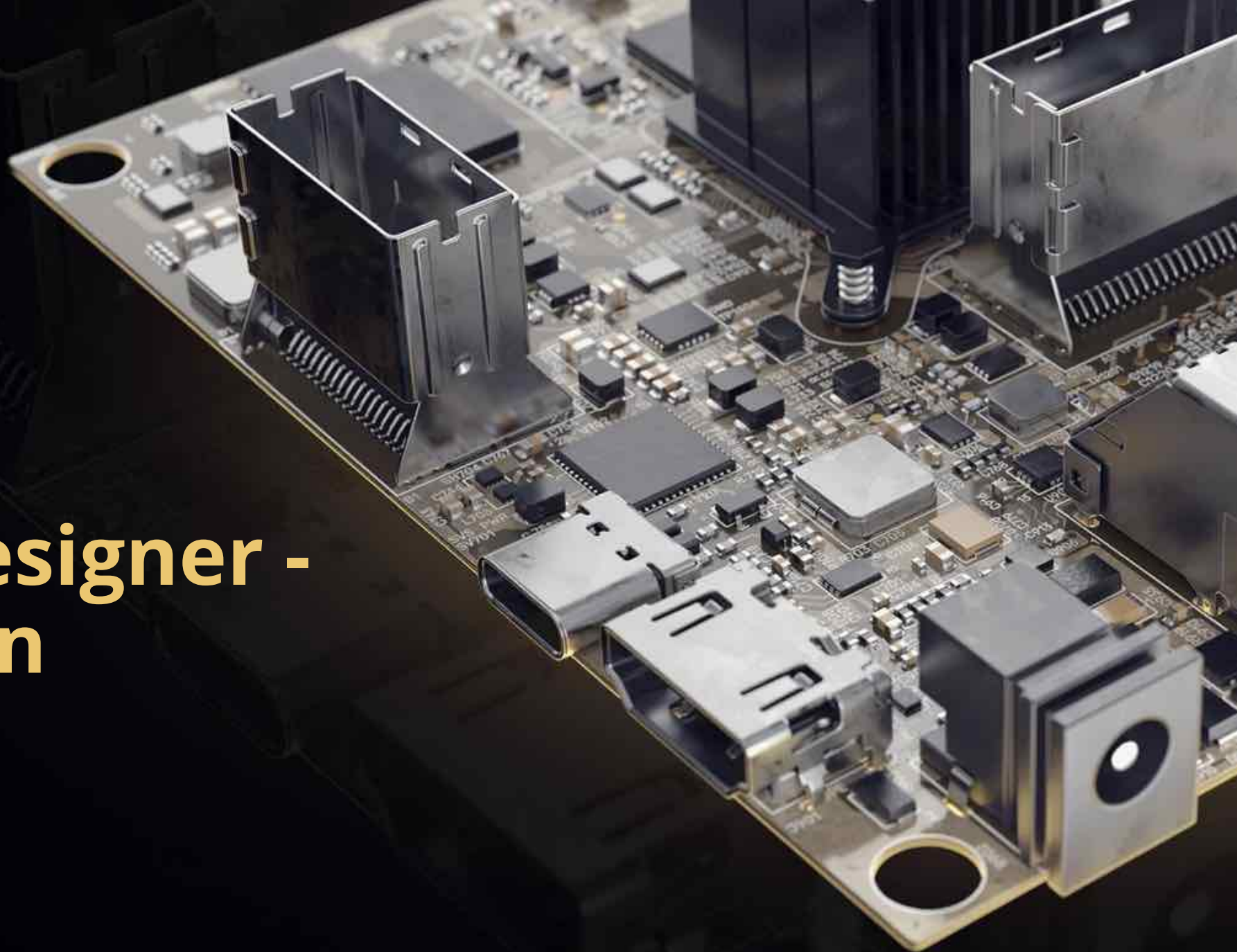
## Export to Mechanical Tool

- Import / Export
- New tool / Context switching
- Error-prone and Data loss
- Time consuming changes
- No electrical intelligence



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# Altium Designer - Draftsman





# What is Draftsman?

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## Integrated and Interactive

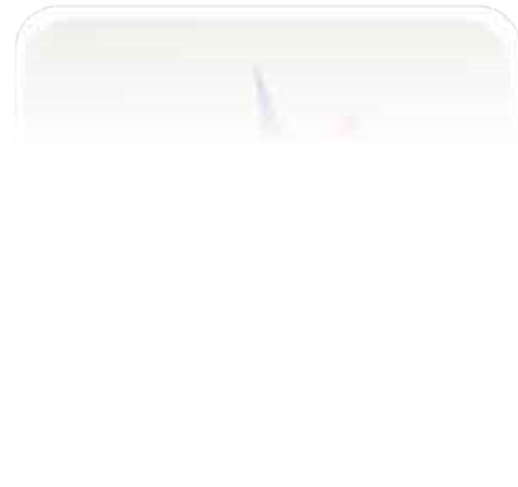
- Embedded full drawing system
- Drawings with all information needed

## No additional license

- Included in Altium Designer license

## Professional

- Developed with ISO and IPC standards in mind
- Consistency throughout team & organization





# What is Draftsman?

## Quick

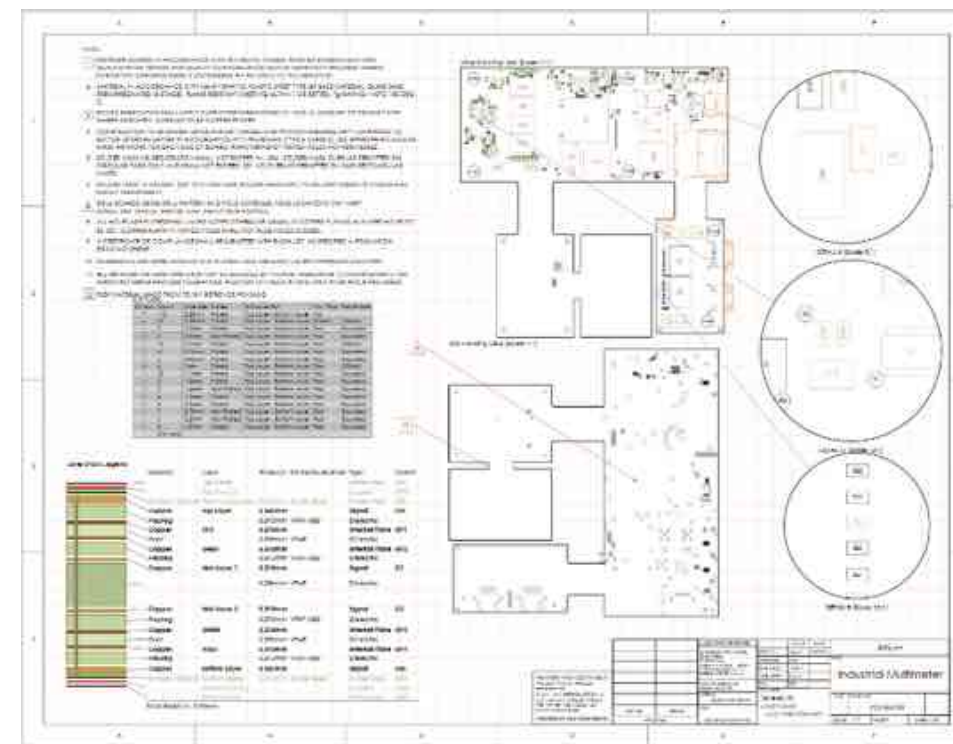
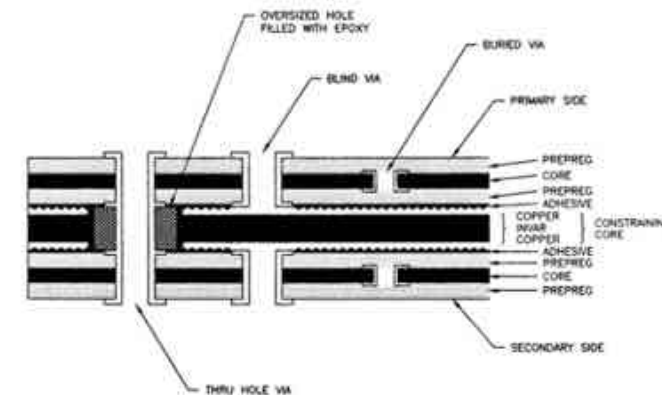
- Fast placement of drawings, notes, callouts...

## PCB Driven

- Pulls data directly from PCB
- No import/export of Design data
- No workarounds with mechanical layers

## Automated

- Customized documentation Templates
- Drawing consistency: same style and concept



# What does Draftsman provide?

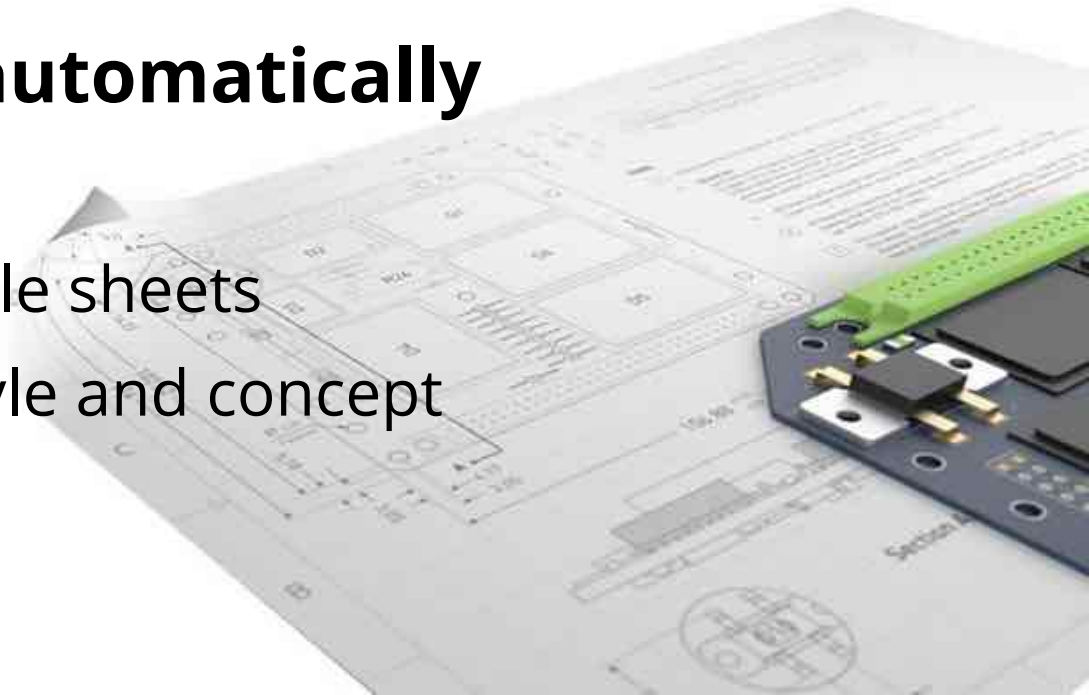
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## Fast and First-time-right documentation

- no export & import of Design data
- no workarounds with mechanical layers
- new drawing engine included in Altium Designer

## Company standards are maintained automatically

- customized documentation templates
- ready-made or individual presets of single sheets
- drawing consistency, each time same style and concept



# Drawing Workflow

## Create Drawing File

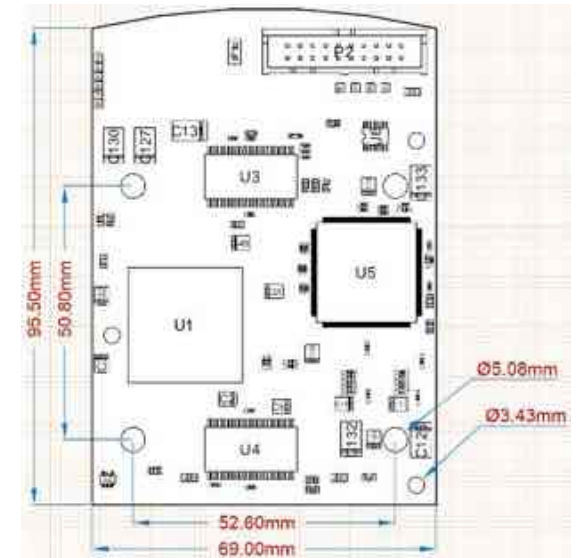
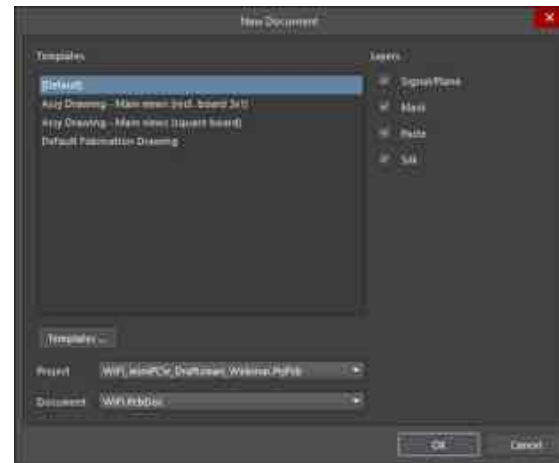
- Blank
- Template

## Place Graphical Information

- Assembly & Fabrication
- Layer stack
- Drill Drawing

## Place Numerical & Written details

- Notes
- Callouts
- Dimension



Material	Layer	Thickness	Dielectric	Material Type	Gerber
Copper	TopPlane	0.035mm	Substr. Prepreg	Signal	GTL
Copper	TopOverlay	0.035mm	Substr. Prepreg	Signal	GTL
Copper	TopLayer	0.035mm	Substr. Prepreg	Signal	GTL
Core		0.36mm	FR-4	Dielectric	
Copper	int1_power	0.04mm		Signal	O1
Prepreg		0.035mm	FR-4	Dielectric	
Copper	int2_gnd	0.04mm		Signal	O2
Core		0.36mm	FR-4	Dielectric	
Copper	BottomLayer	0.035mm	Substr. Prepreg	Signal	GBL
Copper	BottomOverlay	0.035mm	Substr. Prepreg	Signal	GBL
Copper	BottomPlane	0.035mm	Substr. Prepreg	Signal	GBL

Total thickness: 1.30mm

### Notes:

- 1 Fabricate boards in accordance with IPC-RB-276, Class 3. Finished boards must meet quality conformance testing and inspection as specified.
2. Material in accordance with MIL-S-13949/4, laminated sheet, HTE copper-clad, type GF glass clothbase, flame resistant (meeting UL 94V-1 or better). Tg rating: 140 to 160°C.
- 3 Material in accordance with MIL-S-13949/12, plastic sheet, type GF base material, glass base prepregged (B-stage), Tg rating: 140 to 160°C.



# Altium Designer - Draftsman



- Assembly Drawings
- Fabrication Drawings
- Overview Drawings

BOARD ASSEMBLY VIEWS

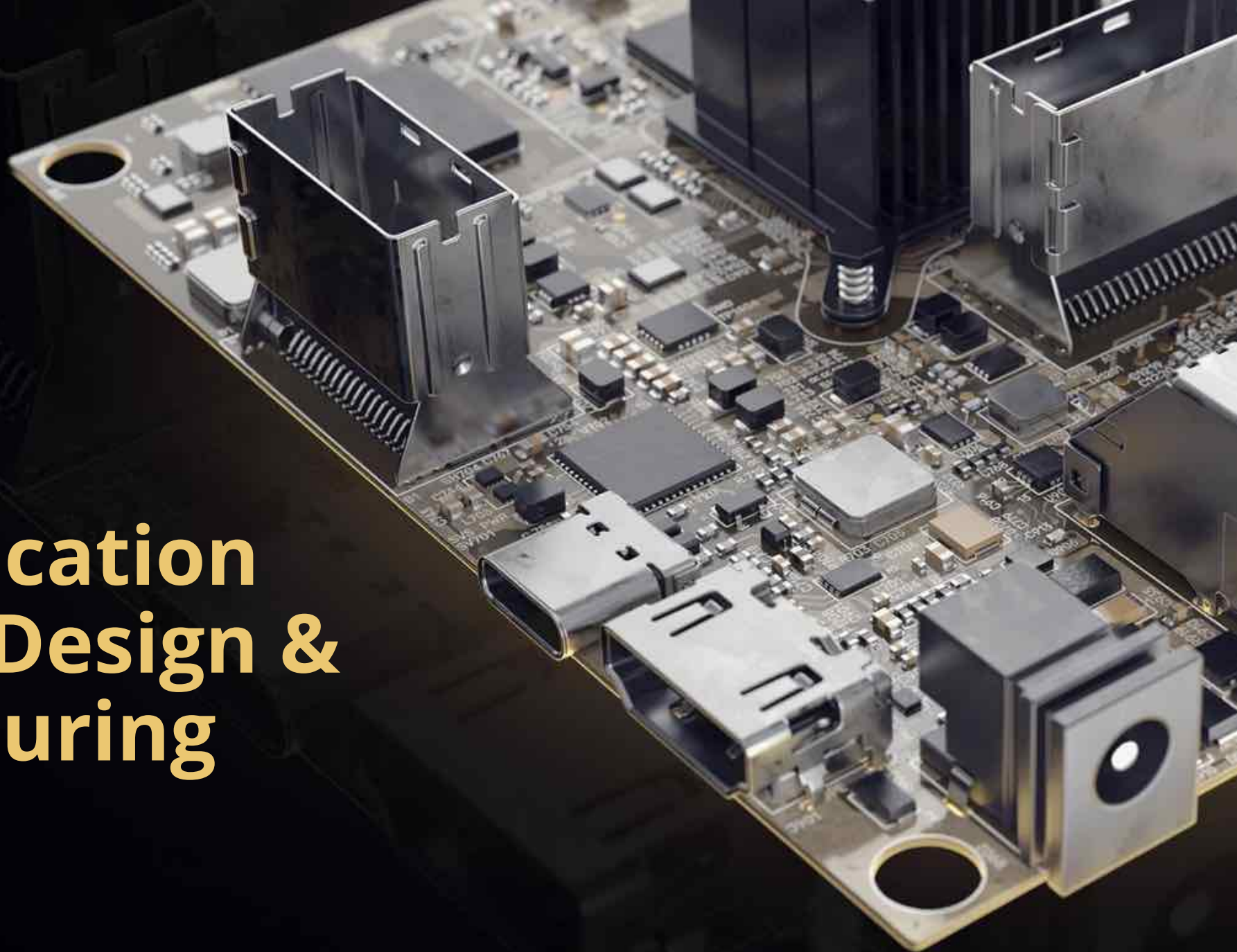
BOARD FABRICATION VIEWS



Number	Group	Size	Drill	Units	Units	Units	Units	Units
1	1	0.35	0.35	mm	1.37	0.0138	mil	0.0138
2	1	0.45	0.45	mm	1.77	0.0178	mil	0.0178
3	1	0.51	0.51	mm	2.01	0.0198	mil	0.0198
4	1	0.76	0.76	mm	3.00	0.0295	mil	0.0295
5	1	1.02	1.02	mm	4.02	0.0398	mil	0.0398
6	1	1.27	1.27	mm	5.00	0.0491	mil	0.0491
7	1	1.52	1.52	mm	6.00	0.0591	mil	0.0591
8	1	1.78	1.78	mm	7.01	0.0692	mil	0.0692
9	1	2.03	2.03	mm	8.00	0.0787	mil	0.0787
10	1	2.29	2.29	mm	9.01	0.0889	mil	0.0889
11	1	2.54	2.54	mm	10.00	0.0984	mil	0.0984
12	1	3.18	3.18	mm	12.50	0.1250	mil	0.1250
13	1	3.43	3.43	mm	13.50	0.1350	mil	0.1350
14	1	3.68	3.68	mm	14.50	0.1450	mil	0.1450
15	1	3.94	3.94	mm	15.50	0.1550	mil	0.1550
16	1	4.19	4.19	mm	16.50	0.1650	mil	0.1650
17	1	4.45	4.45	mm	17.50	0.1750	mil	0.1750
18	1	4.70	4.70	mm	18.50	0.1850	mil	0.1850
19	1	4.95	4.95	mm	19.50	0.1950	mil	0.1950
20	1	5.21	5.21	mm	20.50	0.2050	mil	0.2050
21	1	5.47	5.47	mm	21.50	0.2150	mil	0.2150
22	1	5.72	5.72	mm	22.50	0.2250	mil	0.2250
23	1	5.98	5.98	mm	23.50	0.2350	mil	0.2350
24	1	6.23	6.23	mm	24.50	0.2450	mil	0.2450
25	1	6.49	6.49	mm	25.50	0.2550	mil	0.2550
26	1	6.75	6.75	mm	26.50	0.2650	mil	0.2650
27	1	7.00	7.00	mm	27.50	0.2750	mil	0.2750
28	1	7.26	7.26	mm	28.50	0.2850	mil	0.2850
29	1	7.52	7.52	mm	29.50	0.2950	mil	0.2950
30	1	7.77	7.77	mm	30.50	0.3050	mil	0.3050
31	1	8.03	8.03	mm	31.50	0.3150	mil	0.3150
32	1	8.29	8.29	mm	32.50	0.3250	mil	0.3250
33	1	8.54	8.54	mm	33.50	0.3350	mil	0.3350
34	1	8.80	8.80	mm	34.50	0.3450	mil	0.3450
35	1	9.06	9.06	mm	35.50	0.3550	mil	0.3550
36	1	9.31	9.31	mm	36.50	0.3650	mil	0.3650
37	1	9.57	9.57	mm	37.50	0.3750	mil	0.3750
38	1	9.82	9.82	mm	38.50	0.3850	mil	0.3850
39	1	10.08	10.08	mm	39.50	0.3950	mil	0.3950
40	1	10.34	10.34	mm	40.50	0.4050	mil	0.4050
41	1	10.59	10.59	mm	41.50	0.4150	mil	0.4150
42	1	10.85	10.85	mm	42.50	0.4250	mil	0.4250
43	1	11.11	11.11	mm	43.50	0.4350	mil	0.4350
44	1	11.36	11.36	mm	44.50	0.4450	mil	0.4450
45	1	11.62	11.62	mm	45.50	0.4550	mil	0.4550
46	1	11.88	11.88	mm	46.50	0.4650	mil	0.4650
47	1	12.13	12.13	mm	47.50	0.4750	mil	0.4750
48	1	12.39	12.39	mm	48.50	0.4850	mil	0.4850
49	1	12.65	12.65	mm	49.50	0.4950	mil	0.4950
50	1	12.90	12.90	mm	50.50	0.5050	mil	0.5050
51	1	13.16	13.16	mm	51.50	0.5150	mil	0.5150
52	1	13.42	13.42	mm	52.50	0.5250	mil	0.5250
53	1	13.67	13.67	mm	53.50	0.5350	mil	0.5350
54	1	13.93	13.93	mm	54.50	0.5450	mil	0.5450
55	1	14.19	14.19	mm	55.50	0.5550	mil	0.5550
56	1	14.44	14.44	mm	56.50	0.5650	mil	0.5650
57	1	14.70	14.70	mm	57.50	0.5750	mil	0.5750
58	1	14.96	14.96	mm	58.50	0.5850	mil	0.5850
59	1	15.21	15.21	mm	59.50	0.5950	mil	0.5950
60	1	15.47	15.47	mm	60.50	0.6050	mil	0.6050
61	1	15.73	15.73	mm	61.50	0.6150	mil	0.6150
62	1	15.98	15.98	mm	62.50	0.6250	mil	0.6250
63	1	16.24	16.24	mm	63.50	0.6350	mil	0.6350
64	1	16.50	16.50	mm	64.50	0.6450	mil	0.6450
65	1	16.75	16.75	mm	65.50	0.6550	mil	0.6550
66	1	17.01	17.01	mm	66.50	0.6650	mil	0.6650
67	1	17.27	17.27	mm	67.50	0.6750	mil	0.6750
68	1	17.52	17.52	mm	68.50	0.6850	mil	0.6850
69	1	17.78	17.78	mm	69.50	0.6950	mil	0.6950
70	1	18.04	18.04	mm	70.50	0.7050	mil	0.7050
71	1	18.29	18.29	mm	71.50	0.7150	mil	0.7150
72	1	18.55	18.55	mm	72.50	0.7250	mil	0.7250
73	1	18.81	18.81	mm	73.50	0.7350	mil	0.7350
74	1	19.06	19.06	mm	74.50	0.7450	mil	0.7450
75	1	19.32	19.32	mm	75.50	0.7550	mil	0.7550
76	1	19.58	19.58	mm	76.50	0.7650	mil	0.7650
77	1	19.83	19.83	mm	77.50	0.7750	mil	0.7750
78	1	20.09	20.09	mm	78.50	0.7850	mil	0.7850
79	1	20.35	20.35	mm	79.50	0.7950	mil	0.7950
80	1	20.60	20.60	mm	80.50	0.8050	mil	0.8050
81	1	20.86	20.86	mm	81.50	0.8150	mil	0.8150
82	1	21.12	21.12	mm	82.50	0.8250	mil	0.8250
83	1	21.37	21.37	mm	83.50	0.8350	mil	0.8350
84	1	21.63	21.63	mm	84.50	0.8450	mil	0.8450
85	1	21.89	21.89	mm	85.50	0.8550	mil	0.8550
86	1	22.14	22.14	mm	86.50	0.8650	mil	0.8650
87	1	22.40	22.40	mm	87.50	0.8750	mil	0.8750
88	1	22.66	22.66	mm	88.50	0.8850	mil	0.8850
89	1	22.91	22.91	mm	89.50	0.8950	mil	0.8950
90	1	23.17	23.17	mm	90.50	0.9050	mil	0.9050
91	1	23.43	23.43	mm	91.50	0.9150	mil	0.9150
92	1	23.68	23.68	mm	92.50	0.9250	mil	0.9250
93	1	23.94	23.94	mm	93.50	0.9350	mil	0.9350
94	1	24.20	24.20	mm	94.50	0.9450	mil	0.9450
95	1	24.45	24.45	mm	95.50	0.9550	mil	0.9550
96	1	24.71	24.71	mm	96.50	0.9650	mil	0.9650
97	1	24.97	24.97	mm	97.50	0.9750	mil	0.9750
98	1	25.22	25.22	mm	98.50	0.9850	mil	0.9850
99	1	25.48	25.48	mm	99.50	0.9950	mil	0.9950
100	1	25.74	25.74	mm	100.50	1.0050	mil	1.0050
101	1	26.00	26.00	mm	101.50	1.0150	mil	1.0150
102	1	26.25	26.25	mm	102.50	1.0250	mil	1.0250
103	1	26.51	26.51	mm	103.50	1.0350	mil	1.0350
104	1	26.77	26.77	mm	104.50	1.0450	mil	1.0450
105	1	27.02	27.02	mm	105.50	1.0550	mil	1.0550
106	1	27.28	27.28	mm	106.50	1.0650	mil	1.0650
107	1	27.54	27.54	mm	107.50	1.0750	mil	1.0750
108	1	27.79	27.79	mm	108.50	1.0850	mil	1.0850
109	1	28.05	28.05	mm	109.50	1.0950	mil	1.0950
110	1	28.31	28.31	mm	110.50	1.1050	mil	1.1050
111	1	28.56	28.56	mm	111.50	1.1150	mil	1.1150
112	1	28.82	28.82	mm	112.50	1.1250	mil	1.1250
113	1	29.08	29.08	mm	113.50	1.1350	mil	1.1350
114	1	29.33	29.33	mm	114.50	1.1450	mil	1.1450
115	1	29.59	29.59	mm	115.50	1.1550	mil	1.1550
116	1	29.85	29.85	mm	116.50	1.1650	mil	1.1650
117	1	30.10	30.10	mm	117.50	1.1750	mil	1.1750
118	1	30.36	30.36	mm	118.50	1.1850	mil	1.1850
119	1	30.62	30.62	mm	119.50	1.1950	mil	1.1950
120	1	30.87	30.87	mm	120.50	1.2050	mil	1.2050
121	1	31.13	31.13	mm	121.50	1.2150	mil	1.2150
122	1	31.39	31.39	mm	122.50	1.2250	mil	1.2250
123	1	31.64	31.64	mm	123.50	1.2350	mil	1.2350
124	1	31.90	31.90	mm	124.50	1.2450	mil	1.2450
125	1	32.16	32.16	mm	125.50	1.2550	mil	1.2550
126	1	32.41	32.41	mm	126.50	1.2650	mil	1.2650
127	1	32.67	32.67	mm	127.50	1.2750	mil	1.2750
128	1	32.93	32.93	mm	128.50	1.2850	mil	1.2850
129	1	33.18	33.18	mm	129.50	1.2950	mil	1.2950
130	1	33.44	33.44	mm	130.50	1.3050	mil	1.3050
131	1	33.70	33.70	mm	131.50	1.3150	mil	1.3150
132	1	33.95	33.95	mm	132.50	1.3250	mil	1.3250
133	1	34.21	34.21	mm	133.50	1.3350	mil	1.3350
134	1	34.47	34.47	mm	134.50	1.3450	mil	1.3450
135	1	34.72	34.72	mm	135.50	1.3550	mil	1.3550
136	1	34.98	34.98	mm	136.50	1.3650	mil	1.3650
137	1	35.24	35.24	mm	137.50	1.3750	mil	1.3750
138	1	35.49	35.49	mm	138.50	1.3850	mil	1.3850
139	1	35.75	35.75	mm	139.50	1.3950	mil	1.3950
140	1	36.01	36.01	mm	140.50	1.4050	mil	1.4050
141	1	36.26	36.26	mm	141.50	1.4150	mil	1.4150
142	1	36.52	36.52	mm	142.50	1.4250	mil	1.4250
143	1	36.78	36.78	mm	143.50	1.4350	mil	1.4350
144	1	37.03	37.03	mm	144.50	1.4450	mil	1.4450
145	1	37.29	37.29	mm	145.50	1.4550	mil	1.4550
146	1	37.55	37.55	mm	146.50	1.4650	mil	1.4650
147	1	37.80	37.80	mm	147.50	1.4750	mil	1.4750
148	1	38.06	38.06	mm	148.50	1.4850	mil	1.4850
149	1	38.32	38.32	mm	149.50	1.4950	mil	1.4950

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# Communication between Design & Manufacturing



# Communication today

## PCB Design / Electronic Engineering

... create output files, zip them & send it



... stops working on next project, jumps back to previous, checks and make the change

... create output files, zip them & send it



## Manufacturing partners

... review and analyse the data

... enquiry call / request

... we see a risk here – change ?

... receiving new set of data



time





# Communication a new approach

Altium®

“Design **With** Manufacturing” **vs.** “Design **For** Manufacturing (DFM)”

Traditional “DFM” provides a set of design guidelines to help ensure manufacturability.



Altium 365 opens a bidirectional communication and exchange of information.

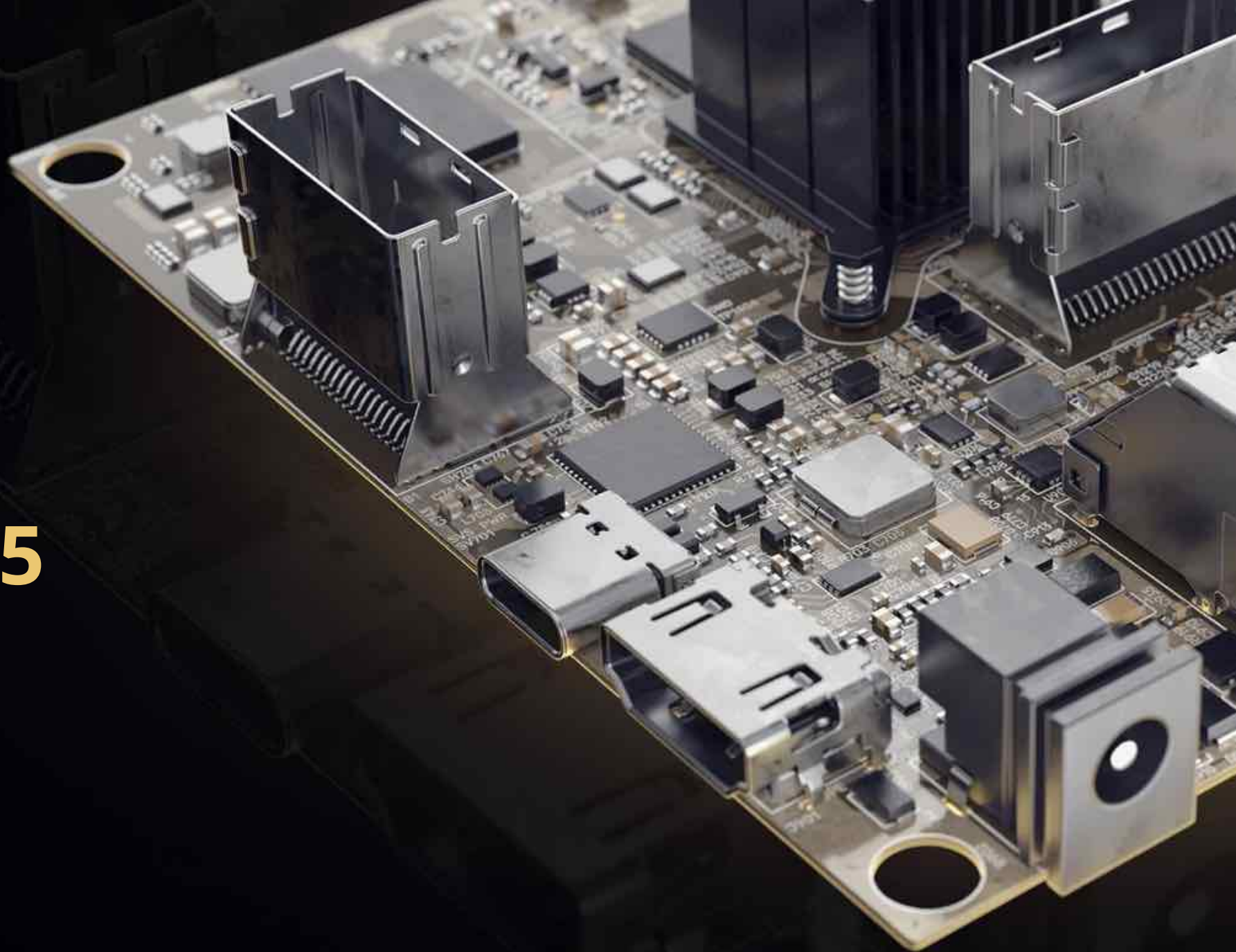


Ultimately connecting the engineering desktop directly to the manufacturing floor.



**Altium**®

**Altium 365**



## Real-Time Commenting and Visualization

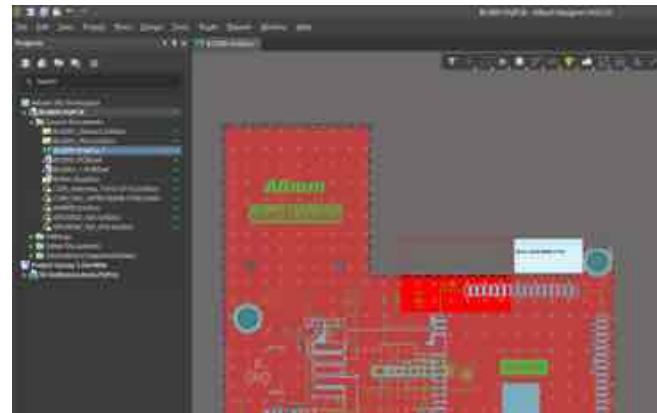
- While PCB gets designed, data can be shared with Manufacturing

## Release-to-Manufacture

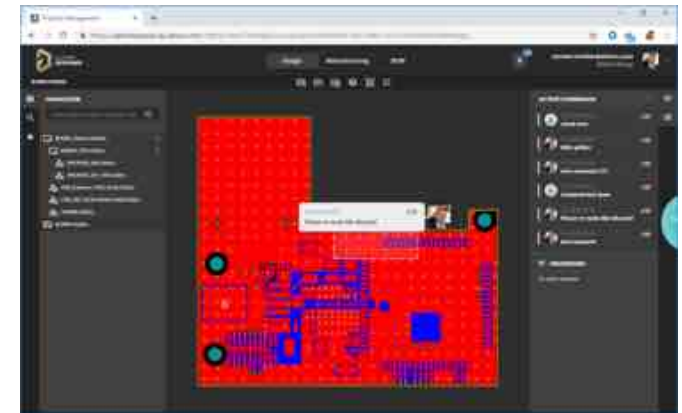
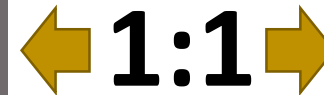
- Controlled, coherent, and repeatable release

## BOM Management and Analysis

- Offers structured, hierarchical BOMs



**PCB Designer** - using Design Tool



**Manufacturing** - using Web browser

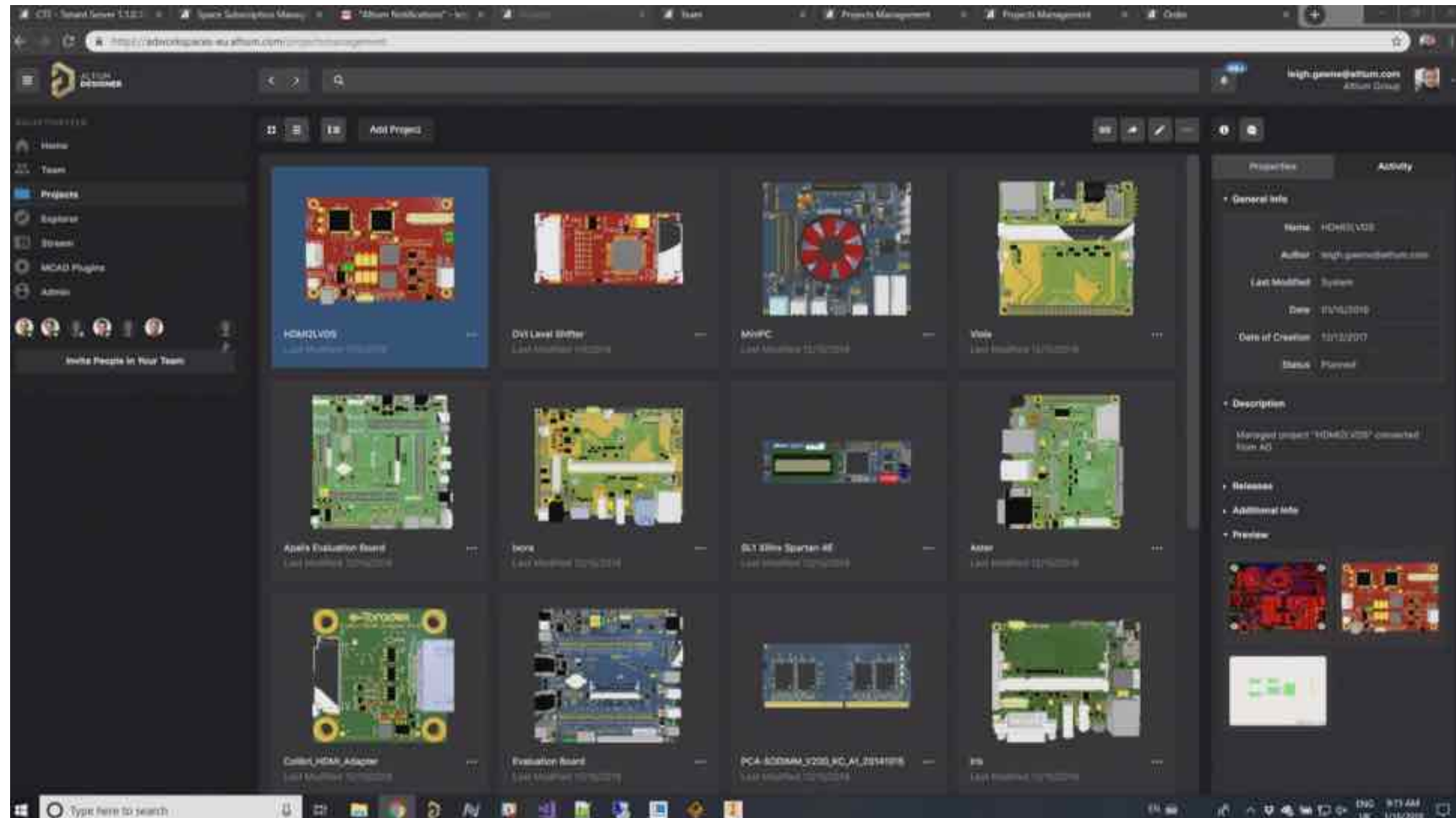


# Altium 365 look & feel

Altium®

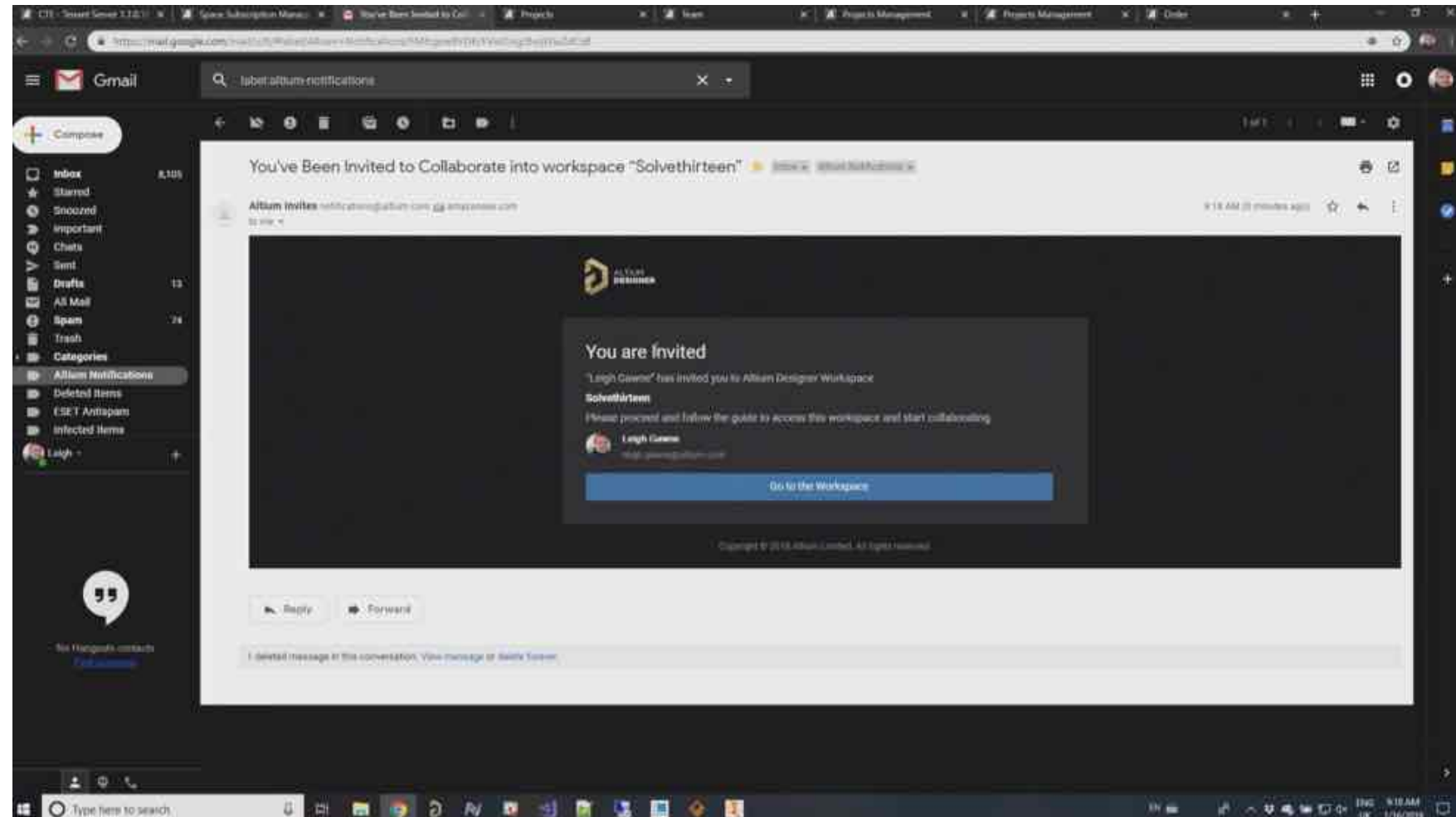
## Browser based

- no Installation
- no Tool experience



## Add User

- Role & Team configuration
- Invitation E-mail with Access Link



# Altium 365 look & feel

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## Manufacturing files

➤ Gerber files

➤ Drill files

➤ Drawing

Variant	PCB Assembly	Project Source	Fabrication	Description	Author	Date	Open	Share	Published	Approved
HDMZLVDS - SMT Only	PCBA-HDMZLVDS-HDMZLVDS - SMT ONLY-A.12	SRC-HDMZLVDS-A.12	FAB-HDMZLVDS-A.12	Test view on top and bottom to fix solder mask constraint	leigh.gaines@altium.com	10/30/2018 16:37	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.12	SRC-HDMZLVDS-A.12	FAB-HDMZLVDS-A.12	Test view on top and bottom to fix solder mask constraint	leigh.gaines@altium.com	10/30/2018 16:37	🔼	90	🟢	🟢
HDMZLVDS - Standard Variant	PCBA-HDMZLVDS-HDMZLVDS - STANDARD VARIANT-S01-A.12	SRC-HDMZLVDS-A.12	FAB-HDMZLVDS-A.12	Test view on top and bottom to fix solder mask constraint	leigh.gaines@altium.com	10/30/2018 16:37	🔼	90	🟢	🟢
HDMZLVDS - Standard Variant	PCBA-HDMZLVDS-HDMZLVDS - STANDARD VARIANT-S01-A.17	SRC-HDMZLVDS-A.17	FAB-HDMZLVDS-A.17	Update solder mask expansion	leigh.gaines@altium.com	10/30/2018 23:58	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.17	SRC-HDMZLVDS-A.17	FAB-HDMZLVDS-A.17	Update solder mask expansion	leigh.gaines@altium.com	10/30/2018 23:58	🔼	90	🟢	🟢
HDMZLVDS - SMT Only	PCBA-HDMZLVDS-HDMZLVDS - SMT ONLY-A.11	SRC-HDMZLVDS-A.11	FAB-HDMZLVDS-A.11	Update solder mask expansion	leigh.gaines@altium.com	10/30/2018 23:58	🔼	90	🟢	🟢
HDMZLVDS - Standard Variant	PCBA-HDMZLVDS-HDMZLVDS - STANDARD VARIANT-S01-A.12	SRC-HDMZLVDS-A.12	FAB-HDMZLVDS-A.12	Updates after initial manufacturing feedback from PCB HQ	leigh.gaines@altium.com	01/04/2018 12:30	🔼	90	🟢	🟢
HDMZLVDS - SMT Only	PCBA-HDMZLVDS-HDMZLVDS - SMT ONLY-A.8	SRC-HDMZLVDS-A.8	FAB-HDMZLVDS-A.8	Updates after initial manufacturing feedback from PCB HQ	leigh.gaines@altium.com	01/04/2018 12:21	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.8	SRC-HDMZLVDS-A.8	FAB-HDMZLVDS-A.8	Updates after initial manufacturing feedback from PCB HQ	leigh.gaines@altium.com	01/04/2018 12:21	🔼	90	🟢	🟢
HDMZLVDS - SMT Only	PCBA-HDMZLVDS-HDMZLVDS - SMT ONLY-A.5	SRC-HDMZLVDS-A.5	FAB-HDMZLVDS-A.5	Correct DRW issues with internal plane clearance and copper to hole reference	leigh.gaines@altium.com	01/04/2018 12:21	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.5	SRC-HDMZLVDS-A.5	FAB-HDMZLVDS-A.5	Correct DRW issues with internal plane clearance and copper to hole reference	leigh.gaines@altium.com	01/04/2018 12:21	🔼	90	🟢	🟢
HDMZLVDS - Standard Variant	PCBA-HDMZLVDS-HDMZLVDS - STANDARD VARIANT-S01-A.11	SRC-HDMZLVDS-A.11	FAB-HDMZLVDS-A.11	Correct DRW issues with internal plane clearance and copper to hole reference	leigh.gaines@altium.com	01/04/2018 12:21	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.11	SRC-HDMZLVDS-A.11	FAB-HDMZLVDS-A.11	Correct DRW issues with internal plane clearance and copper to hole reference	leigh.gaines@altium.com	01/04/2018 12:21	🔼	90	🟢	🟢
HDMZLVDS - Standard Variant	PCBA-HDMZLVDS-HDMZLVDS - STANDARD VARIANT-S01-A.10	SRC-HDMZLVDS-A.10	FAB-HDMZLVDS-A.10	Add missing internal layers to Gerber output	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.10	SRC-HDMZLVDS-A.10	FAB-HDMZLVDS-A.10	Add missing internal layers to Gerber output	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢
HDMZLVDS - SMT Only	PCBA-HDMZLVDS-HDMZLVDS - SMT ONLY-A.9	SRC-HDMZLVDS-A.9	FAB-HDMZLVDS-A.9	Add missing internal layers to Gerber output	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.9	SRC-HDMZLVDS-A.9	FAB-HDMZLVDS-A.9	Add missing internal layers to Gerber output	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢
HDMZLVDS - Standard Variant	PCBA-HDMZLVDS-HDMZLVDS - STANDARD VARIANT-S01-A.9	SRC-HDMZLVDS-A.9	FAB-HDMZLVDS-A.9	Change internal layers from plane to signal type for generating positive Gerbers	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢
[No Variations]	PCBA-HDMZLVDS-NO VARIATIONS-A.9	SRC-HDMZLVDS-A.9	FAB-HDMZLVDS-A.9	Change internal layers from plane to signal type for generating positive Gerbers	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢
HDMZLVDS - SMT Only	PCBA-HDMZLVDS-HDMZLVDS - SMT ONLY-A.8	SRC-HDMZLVDS-A.8	FAB-HDMZLVDS-A.8	Change internal layers from plane to signal type for generating positive Gerbers	leigh.gaines@altium.com	01/04/2018 11:38	🔼	90	🟢	🟢



# Altium 365 look & feel

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## BoM – Bill of Materials

➤ Components

➤ Quantities

➤ Positions

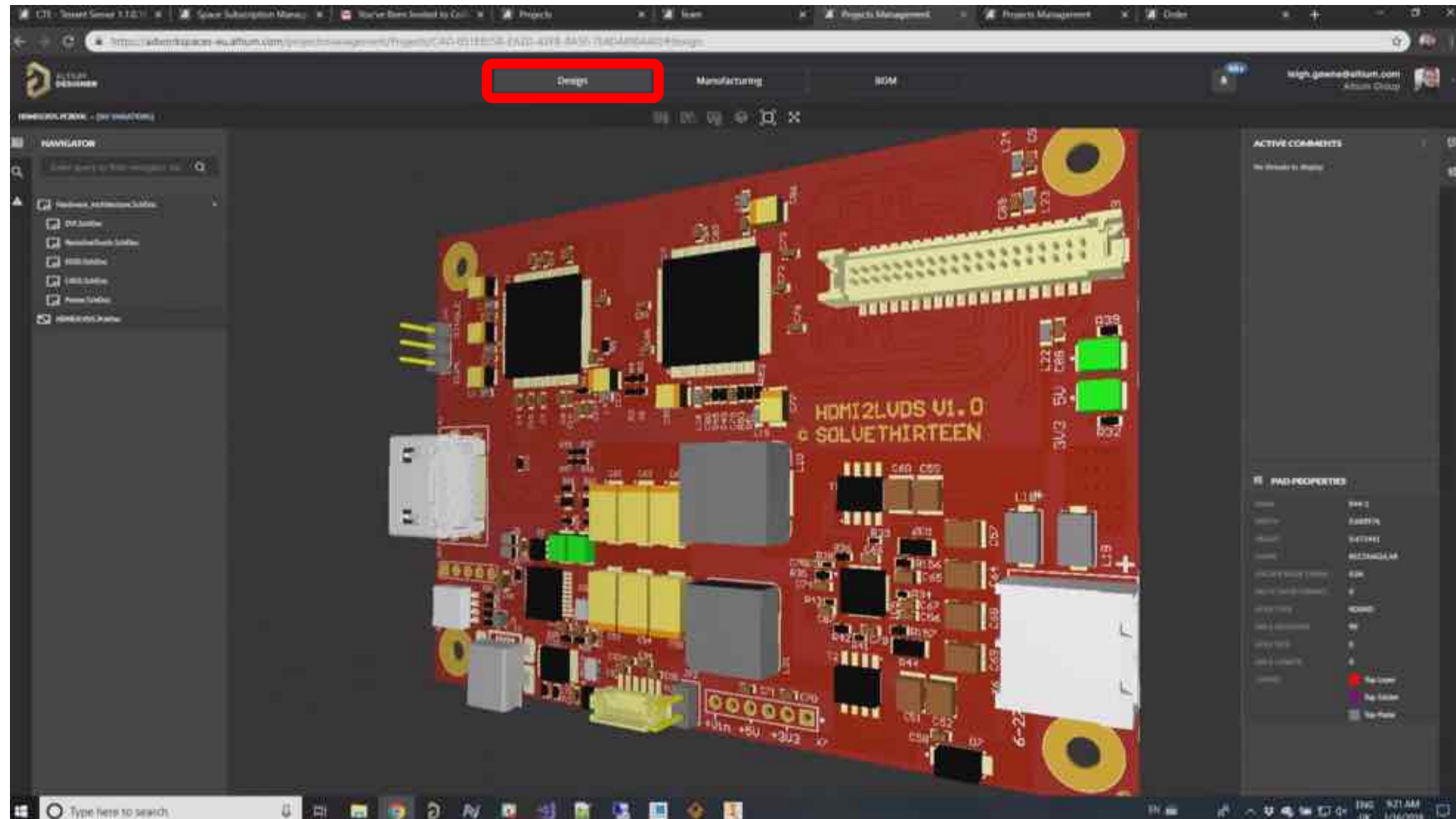
Component ID	Manufacturer Component	Supplier Component
CMP-00005000	06035C-103KAT2A Aluminum NP CAP 0603 1000PF 50V (314503) Wipac Production	478-1227-1-ND Dig-Key Total Price: \$ 1.90 Unit Price: \$ 0.07 Price Break: 30 Stock: 0
CMP-00005003	T495D157K010ATE100 KEMET Cap Tan 50V 150uF 10V D Code 100 (7.3 x 4.3 x 3.5mm) 2349-3 Wipac Production	399-8506-1-ND Dig-Key Total Price: \$ 10.26 Unit Price: \$ 1.71 Price Break: 1 Stock: 11100
CMP-00005002	UMK325ABJ106MMH-T Murata Multilayer Ceramic Capacitors MLCC - SMD/SMT MLCC 3225 1000PF 50V Wipac Production	587-3525-1-ND Dig-Key Total Price: \$ 0.96 Unit Price: \$ 0.61 Price Break: 1 Stock: 0
CMP-00005005	C0603X104K5RACTU KEMET Cap Ceramic 0.1uF 50V X7R 10% SMD 0603 Passives T202 T39 Wipac Production	399-7969-1-ND Dig-Key Total Price: \$ 0.25 Unit Price: \$ 0.22 Price Break: 1 Stock: 40000
CMP-00005006	C0805C106MBRACTU KEMET CAP CER 10uF 10V 0805 50V Wipac Production	399-4926-1-ND Dig-Key Total Price: \$ 0.63 Unit Price: \$ 0.63 Price Break: 1 Stock: 0
CMP-00005008	C0603C105K4PAC-TU Murata CAP CER 1uF 10V X5R 0603 Wipac Production	80-C0603C105K4P Mouser Total Price: \$ 0.12 Unit Price: \$ 0.12 Price Break: 1 Stock: 1

# Altium 365 look & feel

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## Design Data

- 3D view with 3D Models

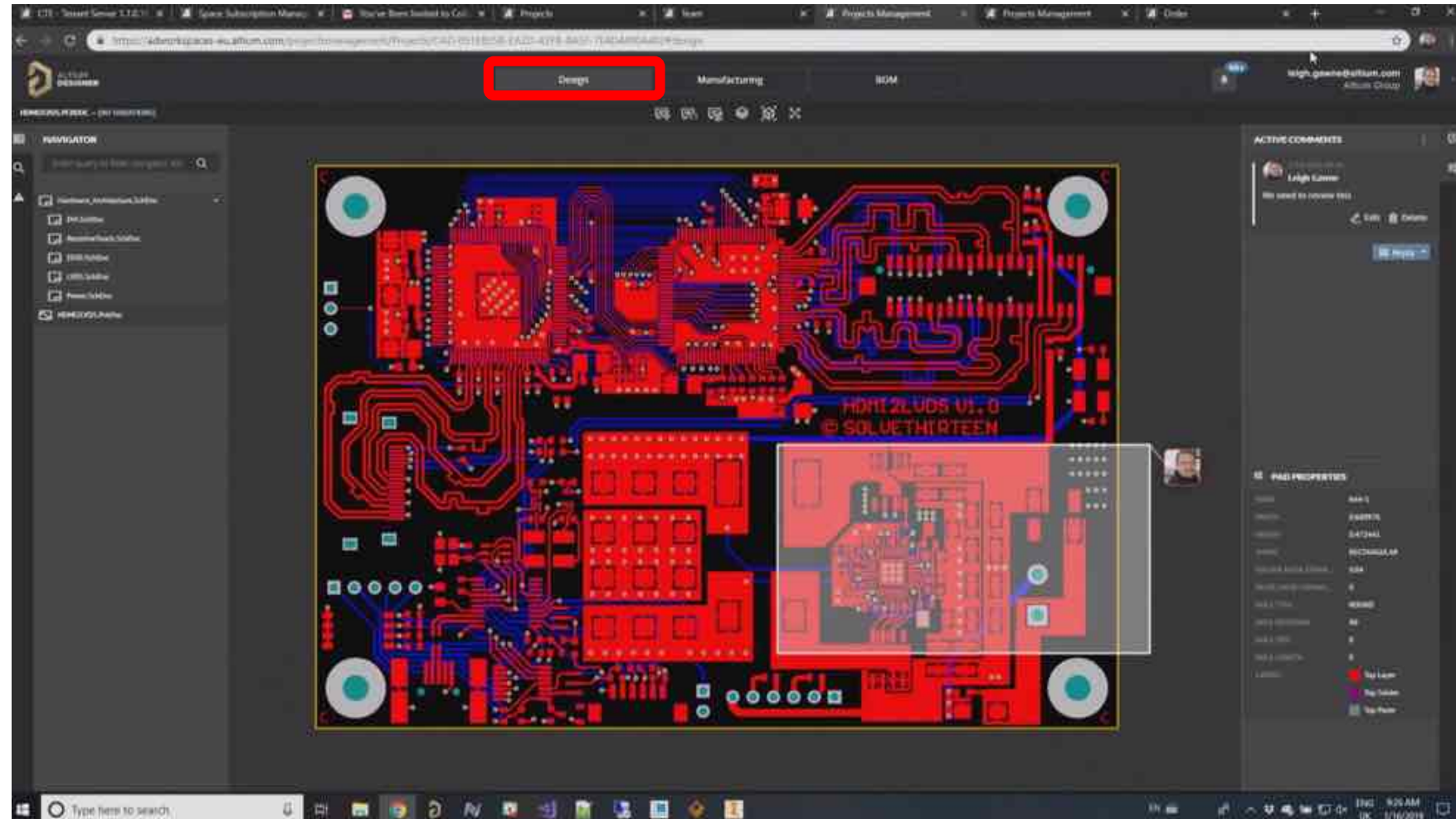


# Altium 365 look & feel

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## Design Data

- 2D view with marking and commenting



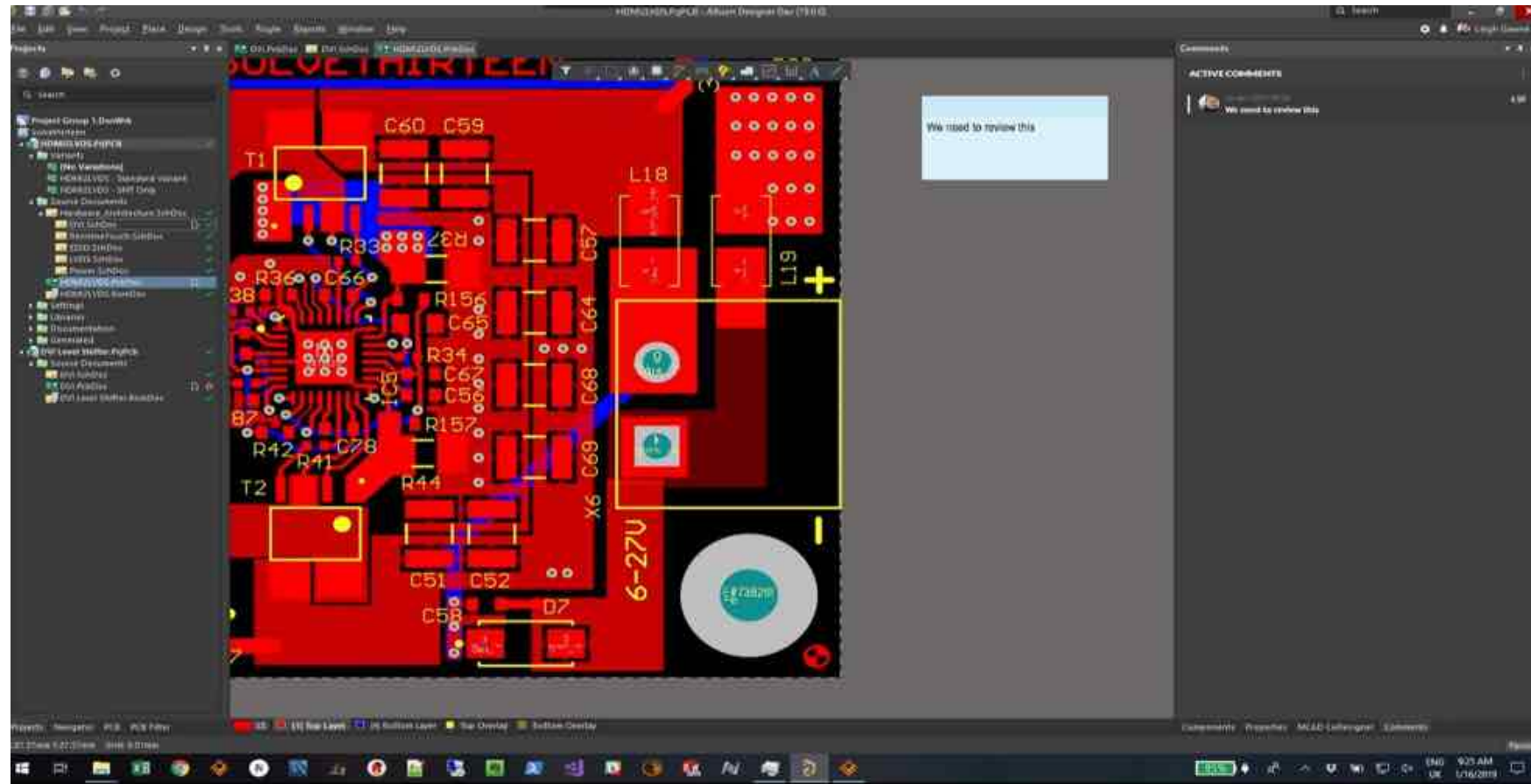


# Integration in Altium Designer

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## PCB Designer review of comments in Altium Designer

- Marks and Comments gets passed into PcbDoc
- Work direct on highlighted topics



## One Place to Keep Everything and Everyone In Sync

Today's electronic design have to consider daily changing conditions, is very difficult to keep everyone and everything in sync.

Altium 365 enables easy organization and sharing of information across key domains - engineers, management, procurement, manufacturers, etc..





**Altium**<sup>®</sup>

**Thank you**

**PowerPoint Request**  
carsten.kindler@altium.com

**Altium 365 – AltiumLive 2019 Keynote Video**

Google Search: Introducing Altium 365

<https://resources.altium.com/altiumlive-2019-summit/keynote-altium365>