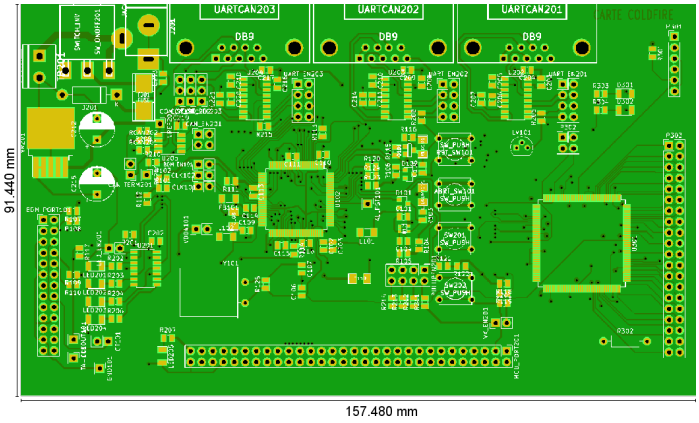
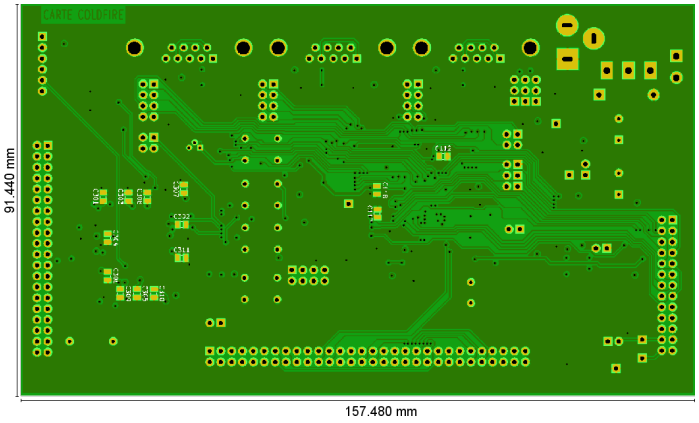
Name	2019 06 25 kit-dev-coldfire-xilinx_5213 X2.zip	Id.	1255 - QED With Image Data
Report Generated on	Jul 5, 2019 9:57:24 AM	Customer	KT

Single PCB View - Original

Top View	Bottom View
	

Stackup - Original

Pressing Stages	1

Summary - General - Original

PCB Size	157.480 mm x 91.440 mm	Surface Finish	unknown
PCB Thickness	1.600 mm	Max. Aspect Ratio on PTH	4.0
Customer Panel Size		Drilled SMD Pads	Yes
Copper Layers	4	Pressing Stages	1
Solder Mask	Both	Electrical Test	Double Sided
Solder Mask Color	unknown	Number of Nets	287
Legend	Both	SMD Pads Top	522
Legend Color	unknown	SMD Pads Bottom	28
Peeloff Mask	None	BGA Pads Top	0
Carbon Mask	None	BGA Pads Bottom	0
Edge Connectors	No	Drill Hole Density	363 Holes/dm^2

Summary - Copper Layer Minima - Original

Layer Type	Copper Width	Critical Copper Width	Trace Width	Critical Trace Width	Copper to Copper Clr.	Trace to Trace Clr.	Same Net Clr.	Ring	Plated	Copper to NPTH Clr.	Copper to Outline Clr.
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
Outer	1 0.054	2 0.200	3 0.200	4 0.200	5 0.153	6 0.158	7 0.010	8 0.118	9 0.287		10 0.400
Inner	11 0.200	12 0.200	13 0.200	14 0.200	15 0.154	16 0.241	17 0.005	18 0.118	19 0.290		20 0.635

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Summary - Sequences - Original

Type	Sequences	Tools	Min. End Dia.	Max. End Dia.	Holes	Routs	Ring on Outer	Ring on Inner	Hole to Copper Clr.
			mm	mm			mm	mm	mm
PTH	1	10	0.400	3.048	523	3	0.118	0.118	0.287
Total	1	10	0.400	3.048	523	3	0.118	0.118	0.287

Summary - Rout - Original

Type	Tools	Min. End Dia.	Max. End Dia.	Rout Length
		mm	mm	mm
Plated	1	1.016	1.016	4.572
NPTH				
Total	1	1.016	1.016	4.572

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Files - Original

Initial	Renamed	Format	Function	Position	Color
kit-dev-coldfire-xilinx_5213-F_Paste.gbr	kit-dev-coldfire-xilinx_5213-F_Paste_gbr	gerx2	paste	top	
kit-dev-coldfire-xilinx_5213-F_SilkS.gbr	kit-dev-coldfire-xilinx_5213-F_SilkS_gbr	gerx2	legend	top	unknown
kit-dev-coldfire-xilinx_5213-F_Mask.gbr	kit-dev-coldfire-xilinx_5213-F_Mask_gbr	gerx2	soldermask	top	unknown
kit-dev-coldfire-xilinx_5213-Top_layer.gbr	kit-dev-coldfire-xilinx_5213-Top_layer_gbr	gerx2	outer	1	
kit-dev-coldfire-xilinx_5213-GND_layer.gbr	kit-dev-coldfire-xilinx_5213-GND_layer_gbr	gerx2	inner	2	
kit-dev-coldfire-xilinx_5213-VDD_layer.gbr	kit-dev-coldfire-xilinx_5213-VDD_layer_gbr	gerx2	inner	3	
kit-dev-coldfire-xilinx_5213-Bottom_layer.gbr	kit-dev-coldfire-xilinx_5213-Bottom_layer_gbr	gerx2	outer	4	
kit-dev-coldfire-xilinx_5213-B_Mask.gbr	kit-dev-coldfire-xilinx_5213-B_Mask_gbr	gerx2	soldermask	bottom	unknown
kit-dev-coldfire-xilinx_5213-B_SilkS.gbr	kit-dev-coldfire-xilinx_5213-B_SilkS_gbr	gerx2	legend	bottom	unknown
kit-dev-coldfire-xilinx_5213-B_Paste.gbr	kit-dev-coldfire-xilinx_5213-B_Paste_gbr	gerx2	paste	bottom	
kit-dev-coldfire-xilinx_5213-PTH-drl.gbr	kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	gerx2	plated	1-4	
kit-dev-coldfire-xilinx_5213-Edge_Cuts.gbr	kit-dev-coldfire-xilinx_5213-Edge_Cuts_gbr	gerx2	cad_outline	none	
kit-dev-coldfire-xilinx_5213-NPTH-drl.gbr	kit-dev-coldfire-xilinx_5213-NPTH-drl_gbr	gerx2	empty	none	
kit-dev-coldfire-xilinx_5213-job.gbrjob		extern	document		

PCB (Single) - Original

PCB Size	Outline Type	Outline Length	Outline Area	Copper Layers	PCB Thickness
mm x mm		mm	dm^2		mm
157.480 x 91.440	real	497.840	1.4400	4	1.600

Customer Panel (Delivery Array, Shipping Panel) - Original

Original Image	Panel Size	Left Border	Right Border	Top Border	Bottom Border	X Spacing	Y Spacing	PCB's
	mm x mm	mm	mm	mm	mm	mm	mm	

Thickness - Original

Buildup Type	Copper Foil		Non-Plated Thickness	unknown
Plated Total Thickness	unknown		Core Thickness	unknown
Plated Foil Thickness	unknown		Prepreg Thickness	unknown
Plating Thickness	unknown		Pressing Stages	1

Copper Layer Minima & Area - Original

File	Pos.	Copper Width	Critical Copper Width	Trace Width	Critical Trace Width	Copper to Copper Clr.	Same Net Clr.	Copper Area	
		mm	mm	mm	mm	mm	mm	dm^2	%
kit-dev-coldfire-xilinx_5213-Top_layer_gbr	1	0.200	0.200	0.200	0.200	0.153	0.020	0.2537	18
kit-dev-coldfire-xilinx_5213-GND_layer_gbr	2	0.200	0.200	0.200	0.200	0.154	0.175	1.0632	74
kit-dev-coldfire-xilinx_5213-VDD_layer_gbr	3	0.249	0.254	0.254	0.254	0.154	0.005	1.0607	74
kit-dev-coldfire-xilinx_5213-Bottom_layer_gbr	4	0.054	0.200	0.200	0.200	0.154	0.010	1.1685	81

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Copper Layer Minima - Copper vs Drill - Original

File	Pos.	Ring					Copper vs Drill Clr.		Copper to Outline Clr.			
		Overall	Via	Laser Via	Comp.	Mech.	Plated	NPTH	Overall	Pad to Outline	Trace to Outline	Region to Outline
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
kit-dev-coldfire-xilinx_5213-Top_layer_gbr	1	0.118	0.118		0.200	0.381	0.287		1.585	1.585	>1.600	>1.600
kit-dev-coldfire-xilinx_5213-GND_layer_gbr	2	0.118	0.118		0.200	0.381	0.334		0.635	>1.600	>1.600	0.635
kit-dev-coldfire-xilinx_5213-VDD_layer_gbr	3	0.118	0.118		0.200	0.381	0.290		0.635	>1.600	>1.600	0.635
kit-dev-coldfire-xilinx_5213-Bottom_layer_gbr	4	0.118	0.118		0.200	0.381	0.302		0.400	>1.600	>1.600	0.400

Copper Layers - Clearance Details - Original

File	Pos.	Copper to Copper Clr.				
		Overall	Pad to Pad	Pad to Track	Track to Track	Trace to Trace Clr.
		mm	mm	mm	mm	mm
kit-dev-coldfire-xilinx_5213-Top_layer_gbr	1	0.153	0.154	0.153	0.158	0.158
kit-dev-coldfire-xilinx_5213-GND_layer_gbr	2	0.154	0.154	0.166	0.241	0.241
kit-dev-coldfire-xilinx_5213-VDD_layer_gbr	3	0.154	0.154	0.173	0.254	0.254
kit-dev-coldfire-xilinx_5213-Bottom_layer_gbr	4	0.154	0.154	0.166	0.158	0.158

Copper Areas - Original

Side	Total	Free of				Edge Connectors		
		Solder Mask (as supplied)	Solder Mask (open vias)	Gold Mask	Silver Mask	Fingers	Finger Size	Total Area
	dm^2	dm^2	dm^2	dm^2	dm^2		mm x mm	dm^2
Top (incl. 1/2 plated holes and routs)	0.3221	0.1887	0.2161			0		
Bottom (incl. 1/2 plated holes and routs)	1.2369	0.1270	0.1545			0		
Total (incl. plated holes and routs)	1.5590	0.3157	0.3707			0		

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Drill Tools - Original

File	Tool Nr.	Span	Type	Function	Method	Filled Via	Counter	Dia.	Tol. -	Tol. +	Holes in PCB	Routs in PCB	Double Hits	Predrill Hits
								mm	mm	mm				
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	10	1-4	PTH	via	mech.	unknown	unknown	0.400	0.000	0.000	253	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	11	1-4	PTH	comp.	mech.	unknown	unknown	0.600	0.000	0.000	3	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	12	1-4	PTH	comp.	mech.	unknown	unknown	0.800	0.000	0.000	8	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	13	1-4	PTH	comp.	mech.	unknown	unknown	0.813	0.000	0.000	16	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	14	1-4	PTH	comp.	mech.	unknown	unknown	1.000	0.000	0.000	203	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	15	1-4	PTH	comp.	mech.	unknown	unknown	1.016	0.000	0.000	27	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	16	1-4	PTH	unknown	unknown	unknown	unknown	1.016	unknown	unknown	0	3	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	17	1-4	PTH	comp.	mech.	unknown	unknown	1.200	0.000	0.000	2	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	18	1-4	PTH	comp.	mech.	unknown	unknown	1.524	0.000	0.000	2	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	19	1-4	PTH	comp.	mech.	unknown	unknown	1.600	0.000	0.000	3	0	0	0
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	20	1-4	PTH	mech.	mech.	unknown	unknown	3.048	0.000	0.000	6	0	0	0

Drill Tools - Drill vs Copper - Original

File	Tool Nr.	Span	Type	Function	Method	Dia.	Ring on Outer	Ring on Inner	Pad Size
						mm	mm	mm	mm
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	10	1-4	PTH	via	mech.	0.400	0.118	0.118	0.636
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	11	1-4	PTH	comp.	mech.	0.600	0.200	0.200	1.000
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	12	1-4	PTH	comp.	mech.	0.800	0.350	0.350	1.500
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	13	1-4	PTH	comp.	mech.	0.813	0.292	0.292	1.397
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	14	1-4	PTH	comp.	mech.	1.000	0.350	0.350	1.700
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	15	1-4	PTH	comp.	mech.	1.016	0.254	0.254	1.524
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	16	1-4	PTH	unknown	unknown	1.016	unknown	unknown	> 2.616
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	17	1-4	PTH	comp.	mech.	1.200	0.600	0.600	2.400
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	18	1-4	PTH	comp.	mech.	1.524	0.508	0.508	2.540
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	19	1-4	PTH	comp.	mech.	1.600	0.470	0.470	2.540
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	20	1-4	PTH	mech.	mech.	3.048	0.381	0.381	3.810

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Sequences - Original

Span	Type	Tools	Min. End Dia.	Max. End Dia.	Holes	Ring on Outer	Ring on Inner	Hole to Copper Clr.	Hole to Hole Clr., within Seq.	Overlapping Holes, within Seq.	Hole to Hole Clr., between Seqs	Hole to Outline Clr.	Slot to Outline Clr.
			mm	mm		mm	mm	mm	mm		mm	mm	mm
1-4	PTH	10	0.400	3.048	523	0.118	0.118	0.287	0.452	No	unknown	3.310	4.445
All	All	10	0.400	3.048	523	0.118	0.118	0.287	0.452	No	unknown	3.310	4.445

Rout Tools - Original

File	Tool Nr.	Type	Tool Dia.	End Dia.	Rout Length	Nibble Count
			mm	mm	mm	
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	16	PTH	unknown	1.016	4.572	51

Routed Holes - Original

File	Hole Nr.	Instances	X Size	Y Size	Rout Length	Nibble Count
			mm	mm	mm	
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	1	1	1.016	2.540	1.524	17
kit-dev-coldfire-xilinx_5213-PTH-drl_gbr	2	2	2.540	1.016	1.524	17
All		3			3.048	34

Sequences Analysis - Original

File	Pos.	Stacked Vias	Overlapped Vias	Via Plug Clr.	Top Tool			Bottom Tool		
					Top Drill File	Tool Nr.	Dia.	Bottom Drill File	Tool Nr.	Dia.
				mm			mm			mm

SMD (Including BGA Pads) - Original

Side	SMD Pads (Total)	Min. SMD Pad	Pitch of Min. SMD Pad	Solder Mask Defined Pads	SMD Pads (Excl. BGA)	BGA Pads	BGA Min. Pitch	All Tracks in BGA Centered	BGA Drilled
		mm	mm				mm		
Top	522	0.250	0.500	0	522	0			
Bottom	28	0.970	1.910	0	28	0			
Both	550	0.250	0.500	0	550	0			

Solder Mask - Original

Side	Mask to Mask Clr.	Web	Ring on Cu Defined Pads	Ring on SM Defined Pads	Mask to Copper Clr.	Fully Covered Via Holes	Partly Covered Via Holes	Half Mask Vias
	mm	mm	mm	mm	mm			
Top	>0.250	>0.250	0.193	>0.250	0.002	Yes	Yes	
Bottom	>0.250	>0.250	0.193	>0.250	0.004	Yes	No	
Both	>0.250	>0.250	0.193	>0.250	0.002	Yes	Yes	Yes

Carbon Masks - Original

File	Position	Carbon Width	Carbon to Carbon Clr.	Clr. to Plated Hole	Clr. to Outline	Layer Area	
		mm	mm	mm	mm	dm^2	%

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Peeloff Masks - Original

File	Position	Min. Peelable Width	Peelable to Peelable Clr.	Clr. to Plated Hole	Clr. to Outline	Layer Area	
		mm	mm	mm	mm	dm^2	%

Legend Layers - Original

File	Position	Legend Width	Legend to Legend Clr.	Layer Area	
		mm	mm	dm^2	%
kit-dev-coldfire-xilinx_5213-F_SilkS_gbr	top	0.120	0.003	0.0700	5
kit-dev-coldfire-xilinx_5213-B_SilkS_gbr	bottom	0.120	0.183	0.0022	0

Gold Layers - Original

File	Position	Gold to Gold Clr.	Clr. to Outline	Layer Area	
		mm	mm	dm^2	%

Heatsink Layers - Original

File	Position	Heatsink to Heatsink Clr.	Clr. to Outline	Layer Area	
		mm	mm	dm^2	%

Scoring - Minimum Clearance - Original

File	Pos.	Copper to Score Top	Copper to Score Right	Copper to Score Bottom	Copper to Score Left
		mm	mm	mm	mm
kit-dev-coldfire-xilinx_5213-Top_layer_gbr	1	>1.600	>1.600	>1.600	1.585
kit-dev-coldfire-xilinx_5213-GND_layer_gbr	2	0.635	1.270	0.636	0.635
kit-dev-coldfire-xilinx_5213-VDD_layer_gbr	3	>1.600	0.635	1.270	1.270
kit-dev-coldfire-xilinx_5213-Bottom_layer_gbr	4	0.420	0.400	0.620	0.580

Scoring - Routing (based on outline analysis) - Original

Side	Lines	Score Lines Clr.	Saved Routing	Remaining Routing
		mm	mm	mm
Horizontal Score Lines				
Top	1	0.420	>1.600	
Mid	0			
Bottom	1	0.620	>1.600	
Vertical Score Lines				
Left	1	0.580	>1.600	
Mid	0			
Right	1	0.400	>1.600	
All Score Lines				
	4	0.400	497.840	0.000

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Bare Board Test - Original

Side	Testable Points (TPs)	Max. TP Density	SMD Pads	Min. SMD Pad	Pitch of Min. SMD Pad	Edge Connector Fingers
		TP/dm^2		mm	mm	
Top	792	1387	522	0.250	0.500	0
Bottom	298	420	28	0.970	1.910	0
Both	1090	1387	550	0.250	0.500	0

DFM Classes - Original

			Standard						Advanced			
			3	4	5	6	7	8	9	10	11	12
Track & Gap	min Clearance (Track-Track / Track-Pad / Pad-Pad)	0.153	300.000	200.000	150.000	120.000	100.000	100.000	85.000	75.000	60.000	<
	min Track Width / min Thermal Gap	0.200	300.000	200.000	150.000	120.000	100.000	100.000	85.000	75.000	60.000	<
Ring for IPC Class 2	min Outer Layer Annular Ring	0.118	200.000	175.000	150.000	120.000	100.000	100.000	75.000	75.000	60.000	<
	min Inner Layer Annular Ring	0.118	225.000	200.000	175.000	145.000	125.000	125.000	100.000	100.000	85.000	<
Aspect Ratio	max aspect ratio for Plated hole	4.000	3.200	3.600	4.000	4.600	5.300	6.400	6.400	-	-	-
Drill - Cu	distance Plated hole to Plated hole	0.452	750.000	600.000	500.000	410.000	350.000	350.000	285.000	275.000	230.000	<
	distance Non-plated hole to Cu on inner layers		IAR + 25	IAR + 25	IAR + 25	IAR + 25	IAR + 25	IAR + 25	IAR + 25	IAR + 25	IAR + 25	<
	distance Non-plated hole to Cu on outer layers		350.000	300.000	250.000	200.000	200.000	200.000	150.000	100.000	75.000	<
Cu Thickness	maximum total Cu thickness that can be etched (no minimum)		105.000	70.000	60.000	50.000	35.000	35.000	20.000	15.000	15.000	<
Solder Mask	solder mask annular ring & track overhang	0.002	150.000	100.000	75.000	60.000	50.000	50.000	42.500	37.500	30.000	<
	solder mask solderweb		200.000	150.000	125.000	100.000	100.000	100.000	87.000	87.000	75.000	<

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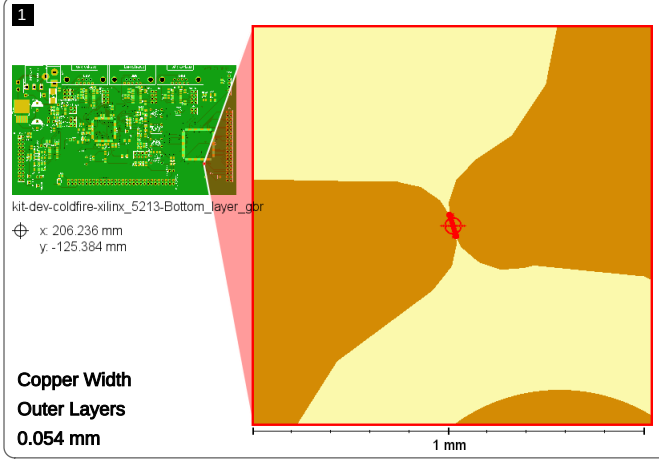
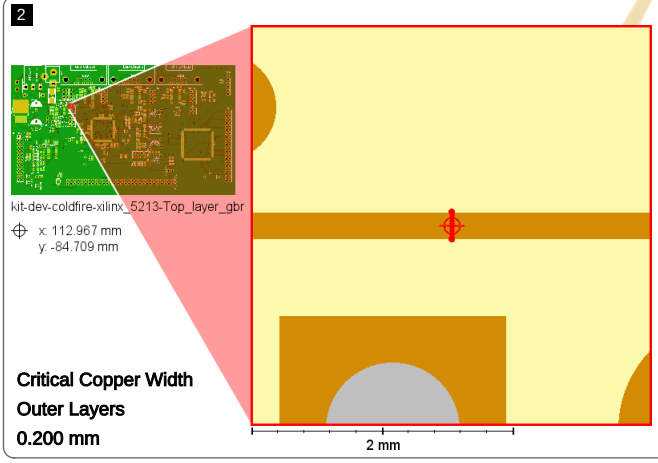
Summary Minimum Design Characteristics - Locations - Original

1



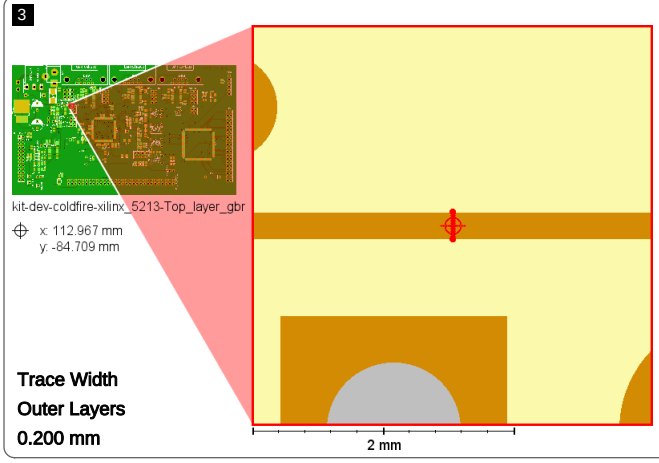
Copper Width
Outer Layers
0.054 mm

2



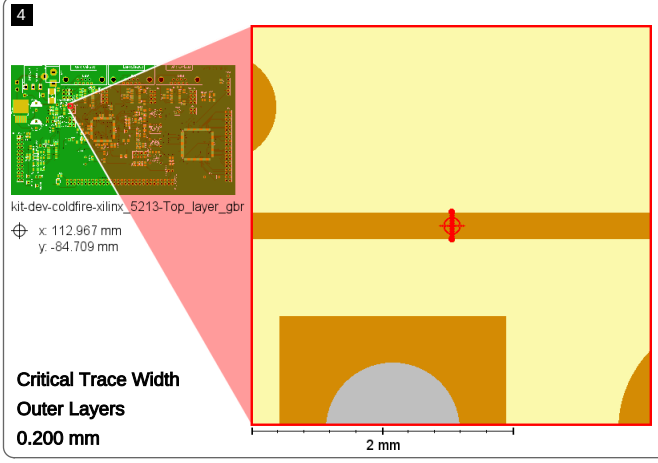
Critical Copper Width
Outer Layers
0.200 mm

3



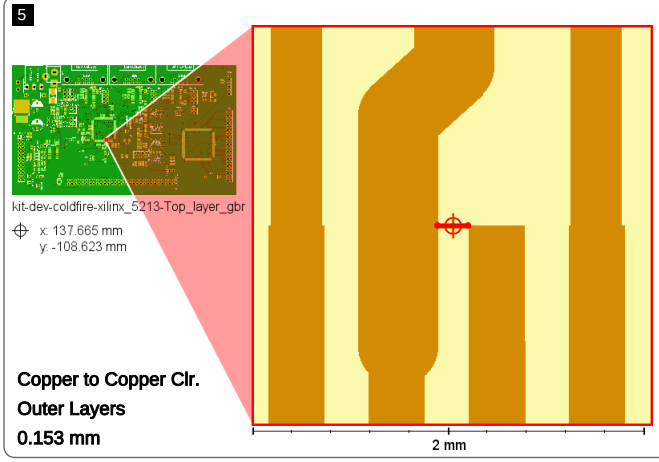
Trace Width
Outer Layers
0.200 mm

4



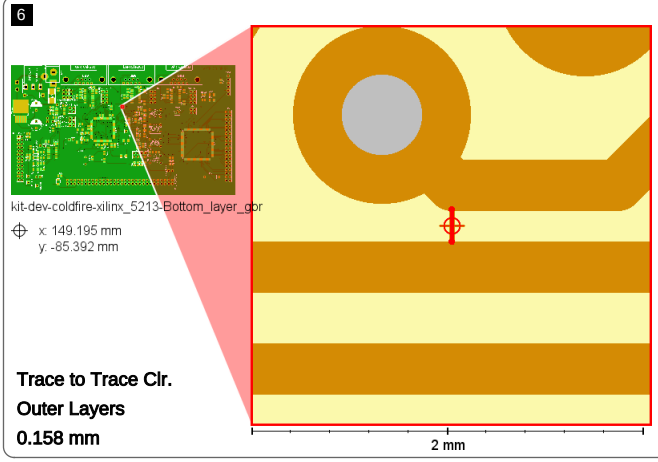
Critical Trace Width
Outer Layers
0.200 mm

5



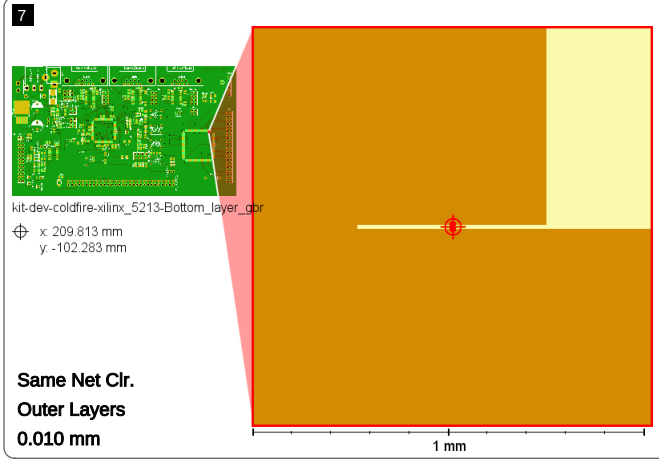
Copper to Copper Clr.
Outer Layers
0.153 mm

6



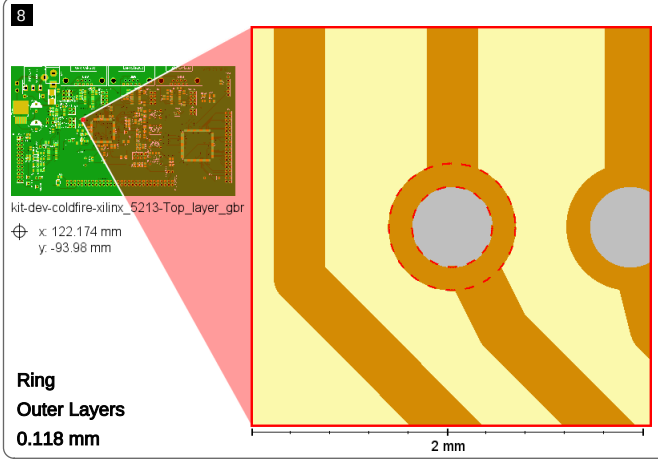
Trace to Trace Clr.
Outer Layers
0.158 mm

7



Same Net Clr.
Outer Layers
0.010 mm

8



Ring
Outer Layers
0.118 mm

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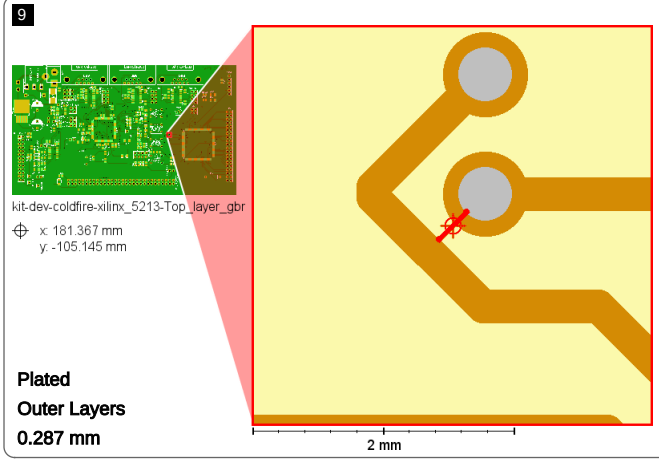
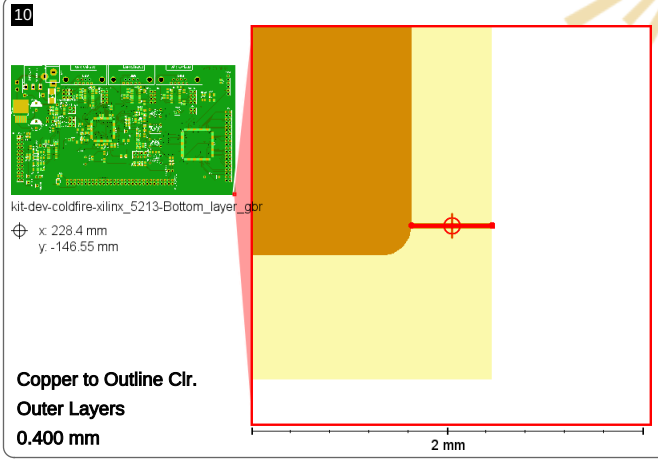
9



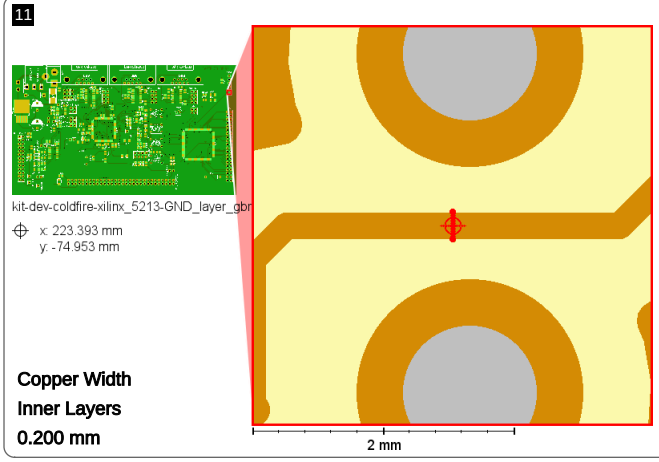
Plated
Outer Layers
0.287 mm

10



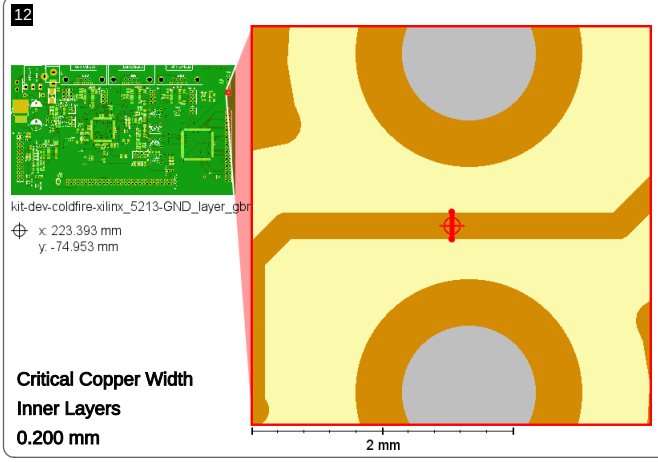
Copper to Outline Clr.
Outer Layers
0.400 mm

11



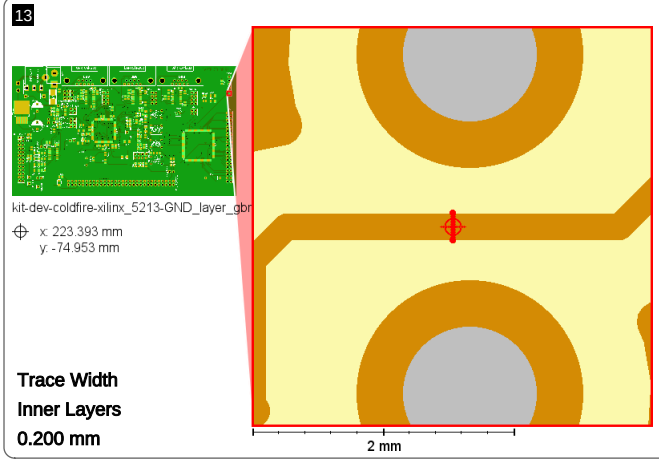
Copper Width
Inner Layers
0.200 mm

12



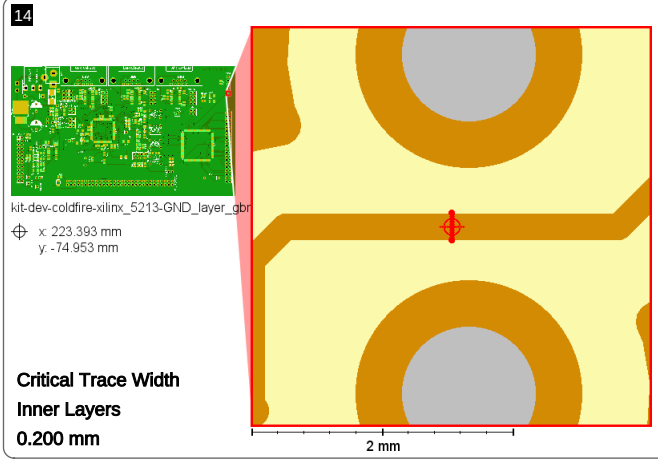
Critical Copper Width
Inner Layers
0.200 mm

13



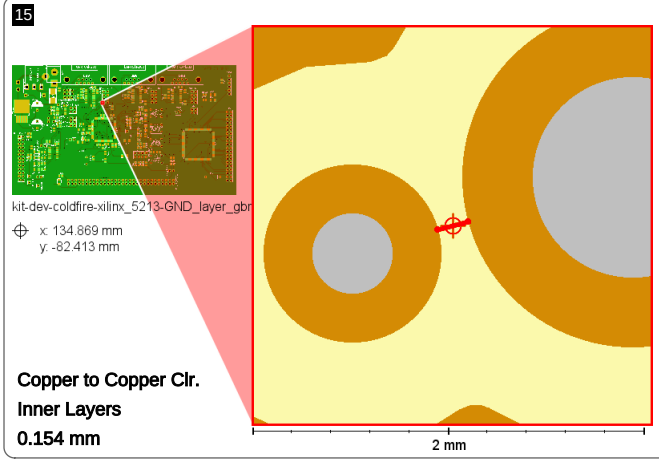
Trace Width
Inner Layers
0.200 mm

14



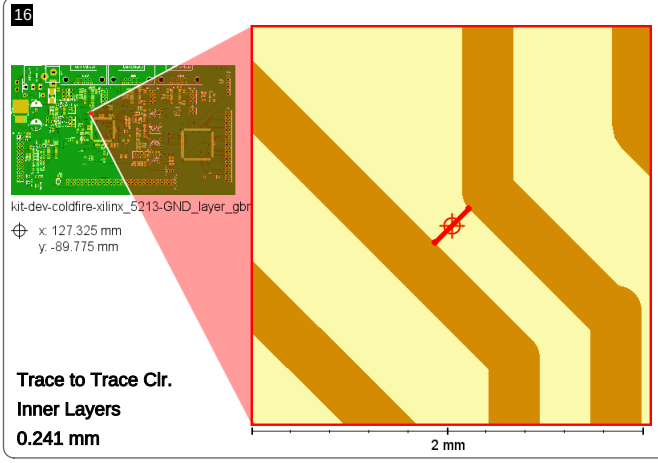
Critical Trace Width
Inner Layers
0.200 mm

15



Copper to Copper Clr.
Inner Layers
0.154 mm

16



Trace to Trace Clr.
Inner Layers
0.241 mm

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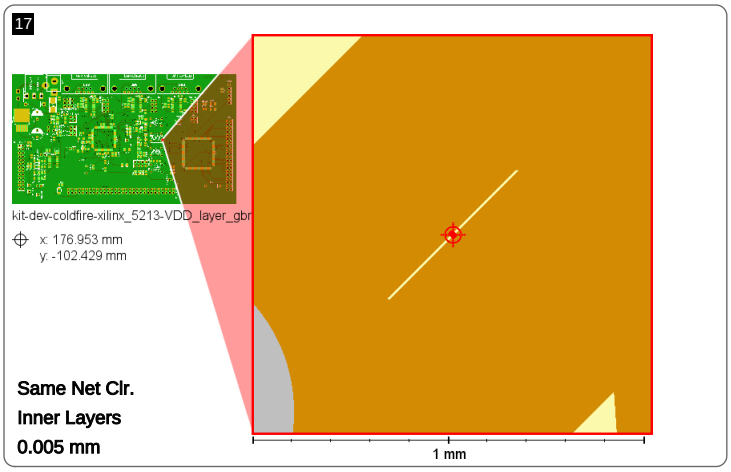

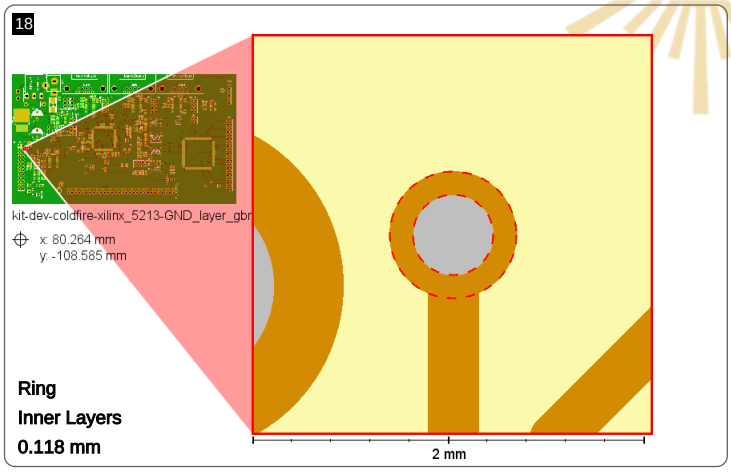

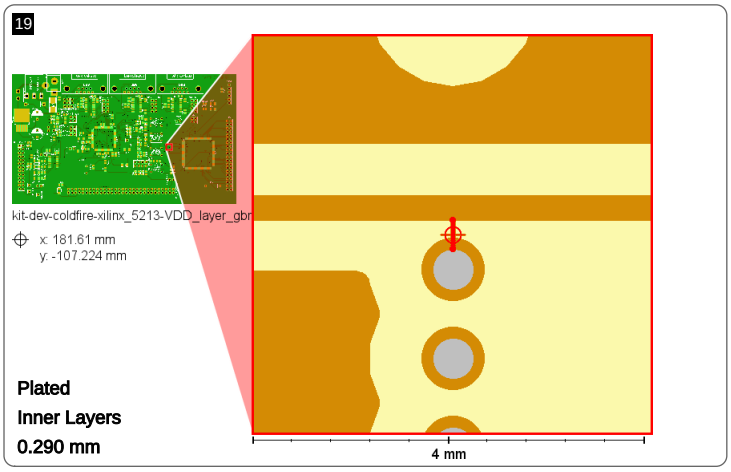

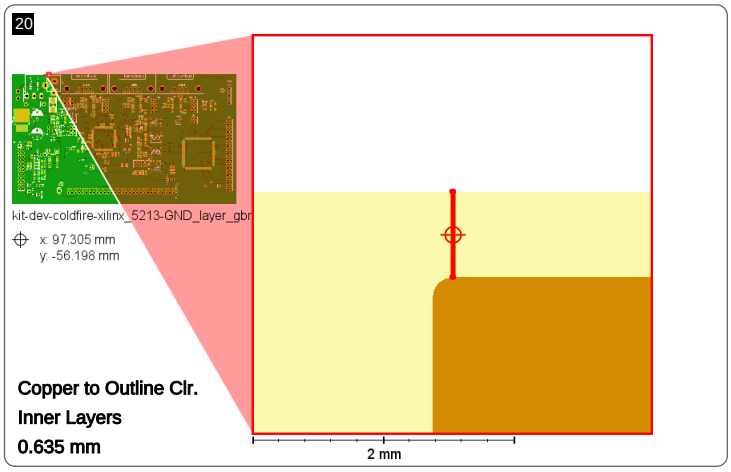

Customer and Job Identification - Original

Customer		
Customer	KT	

Customer and Job Identification - Original

Job		
Board Id	KT: Latest QED requested	Article Id

Customer and Job Identification - Original

CVO		
Customer ID		Customer Contact Person
Email		

Comments - Original

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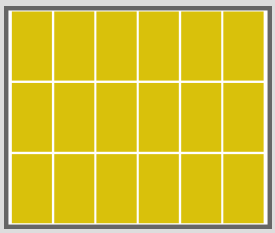
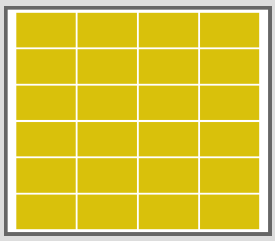
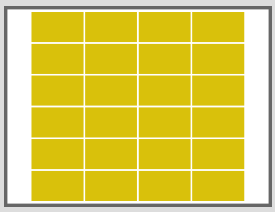
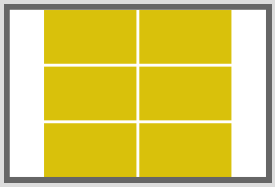
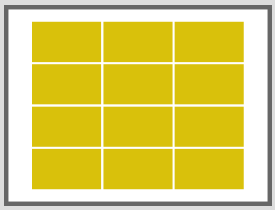
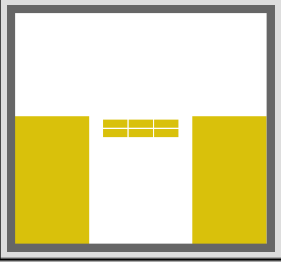
Production Panel (Working Panel) - Original

Panel Name	Panel Size	Useful Area	Drawing	Pieces/Panel	Panel Fill	Panel Usage
	mm x mm	mm x mm			%	%
24x20	610.000 x 508.000	590.000 x 488.000		18	96	84
28x24	711.000 x 610.000	691.000 x 590.000		24	90	80
32x24	812.000 x 610.000	792.000 x 590.000		24	79	70
18x12	457.000 x 305.000	437.000 x 285.000		6	73	62
24x18	610.000 x 457.000	590.000 x 437.000		12	71	62
13x12	330.000 x 305.000	310.000 x 285.000		2	32	29

Ucamco Former Barco ETS

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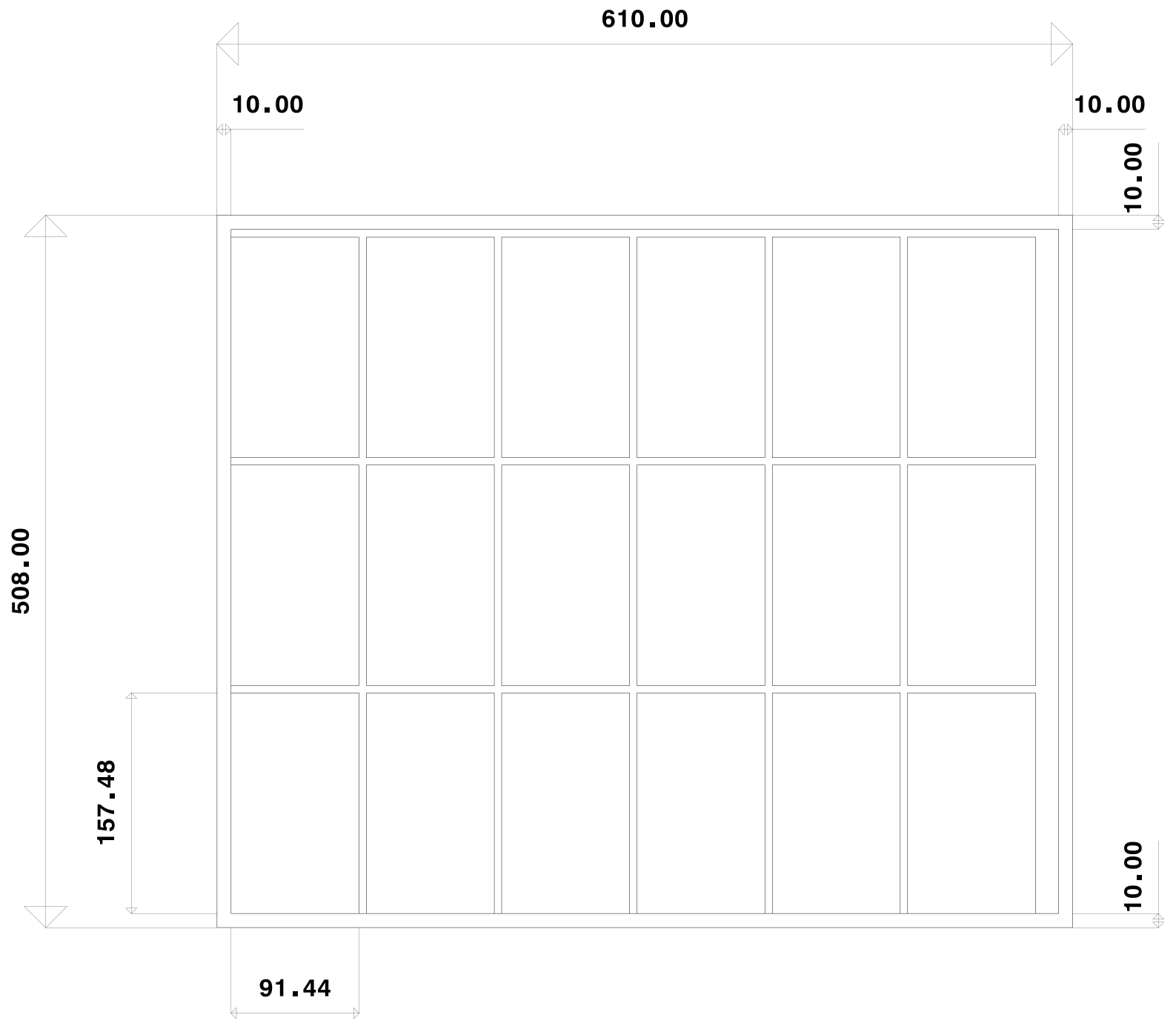
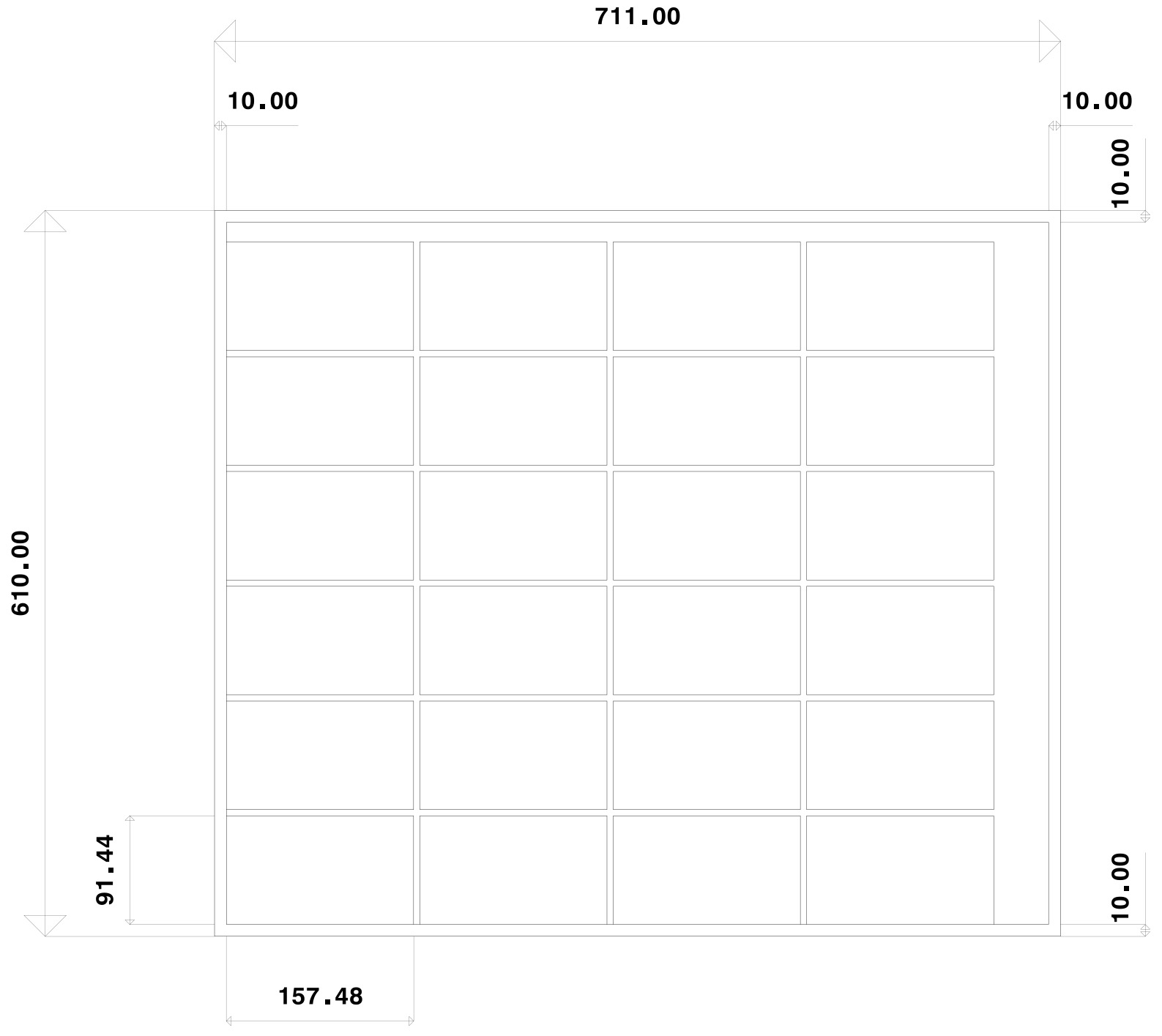
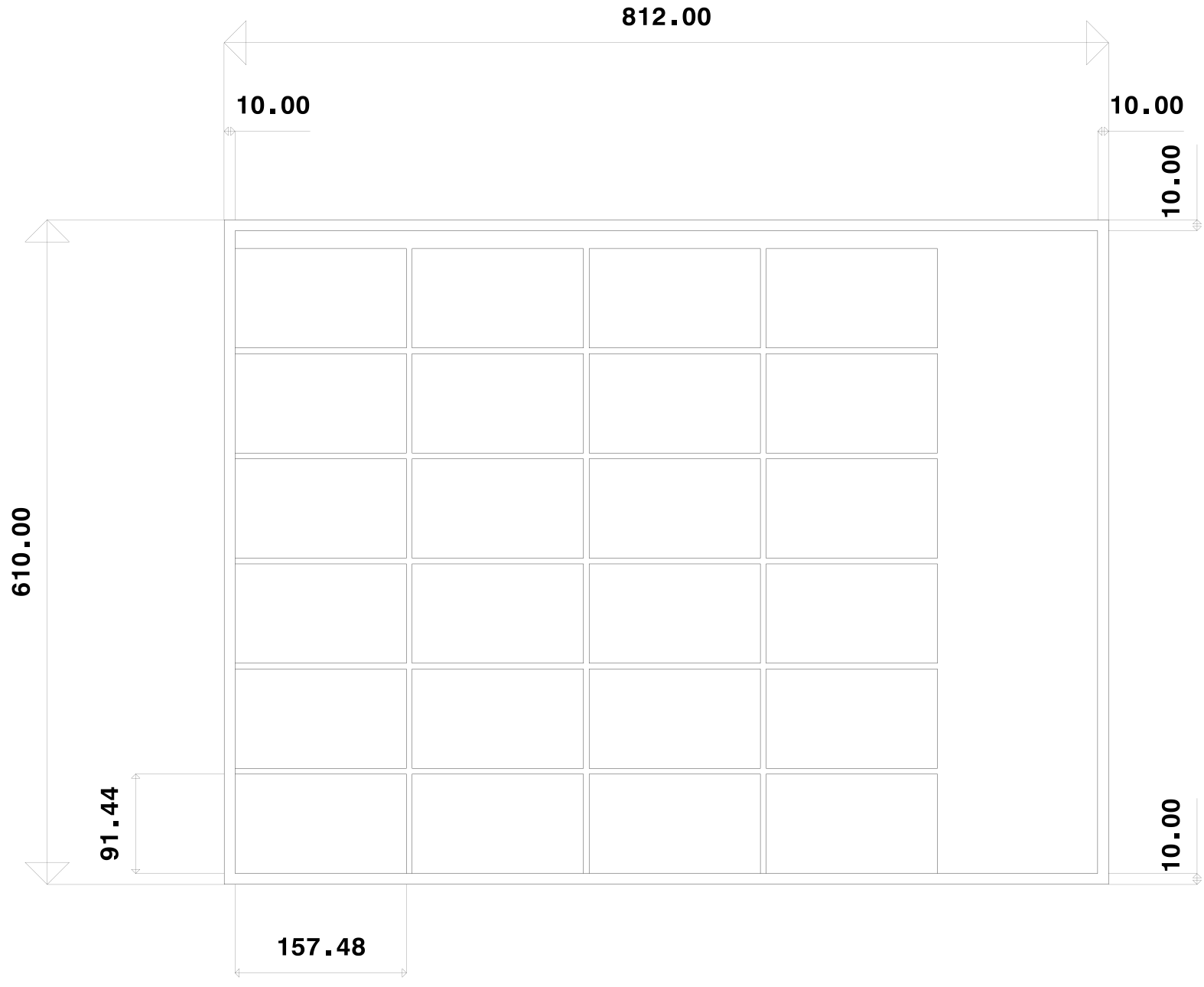
Production Panel: 24x20



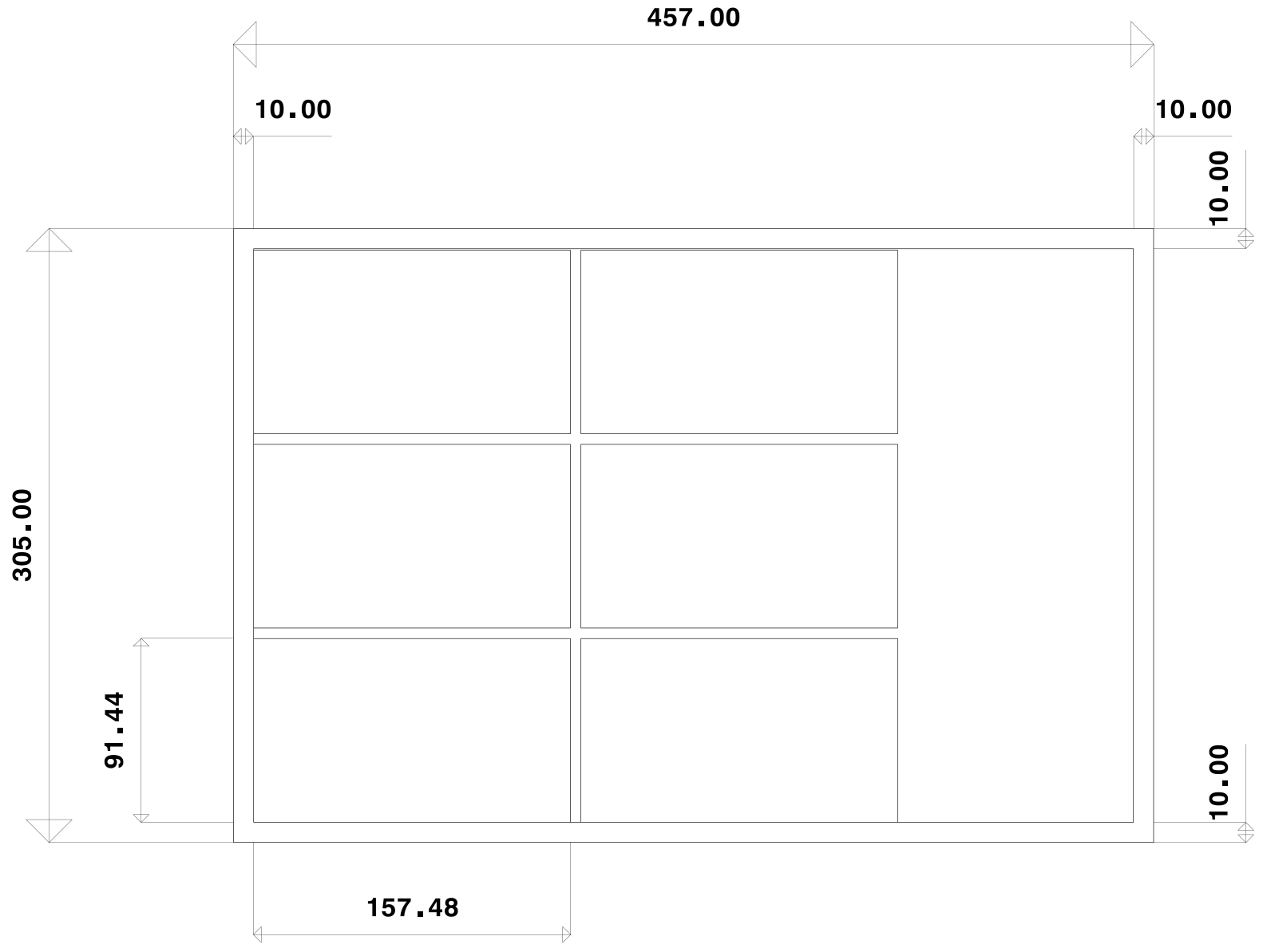
Production Panel: 28x24



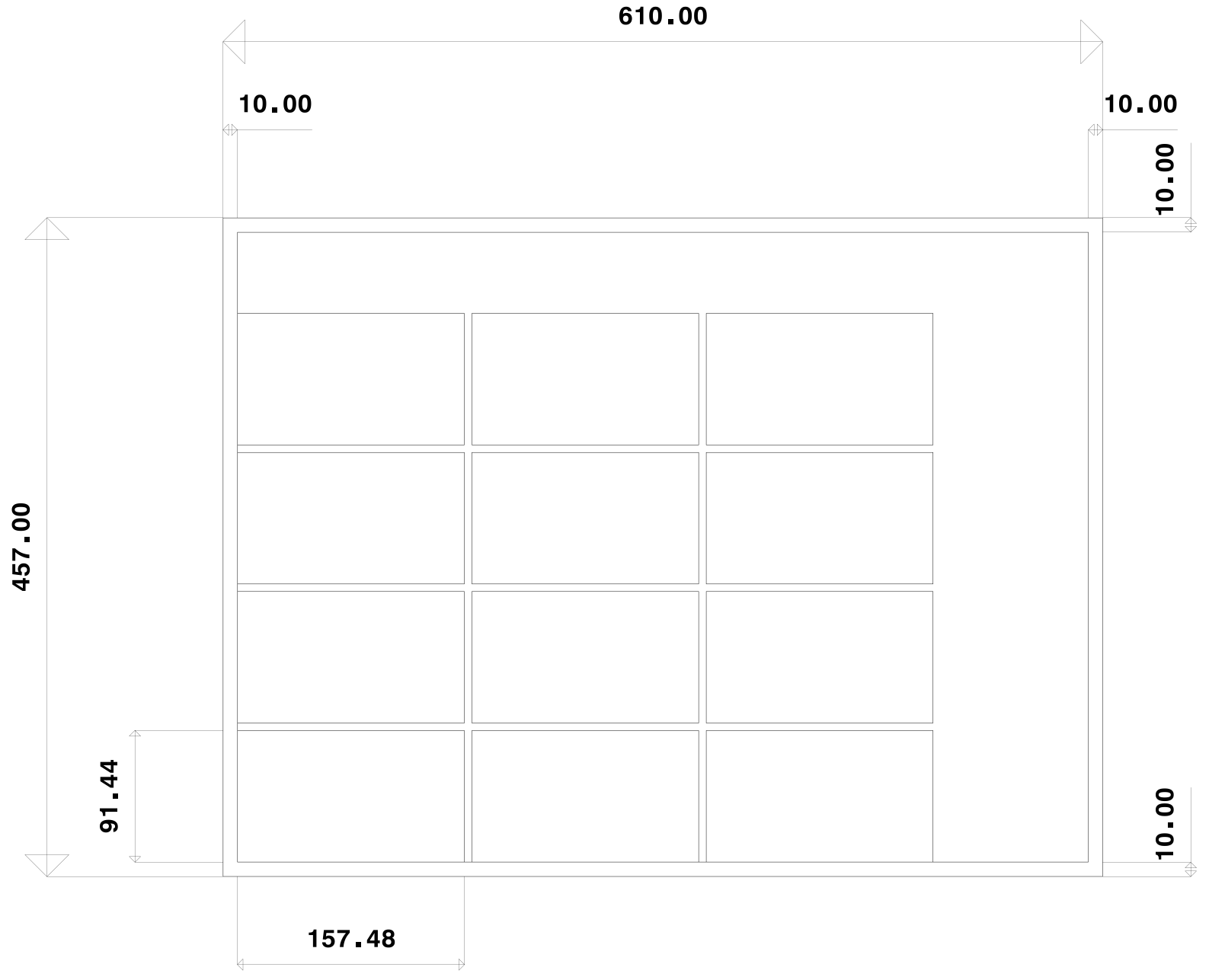
Production Panel: 32x24



Production Panel: 18x12



Production Panel: 24x18



Production Panel: 13x12