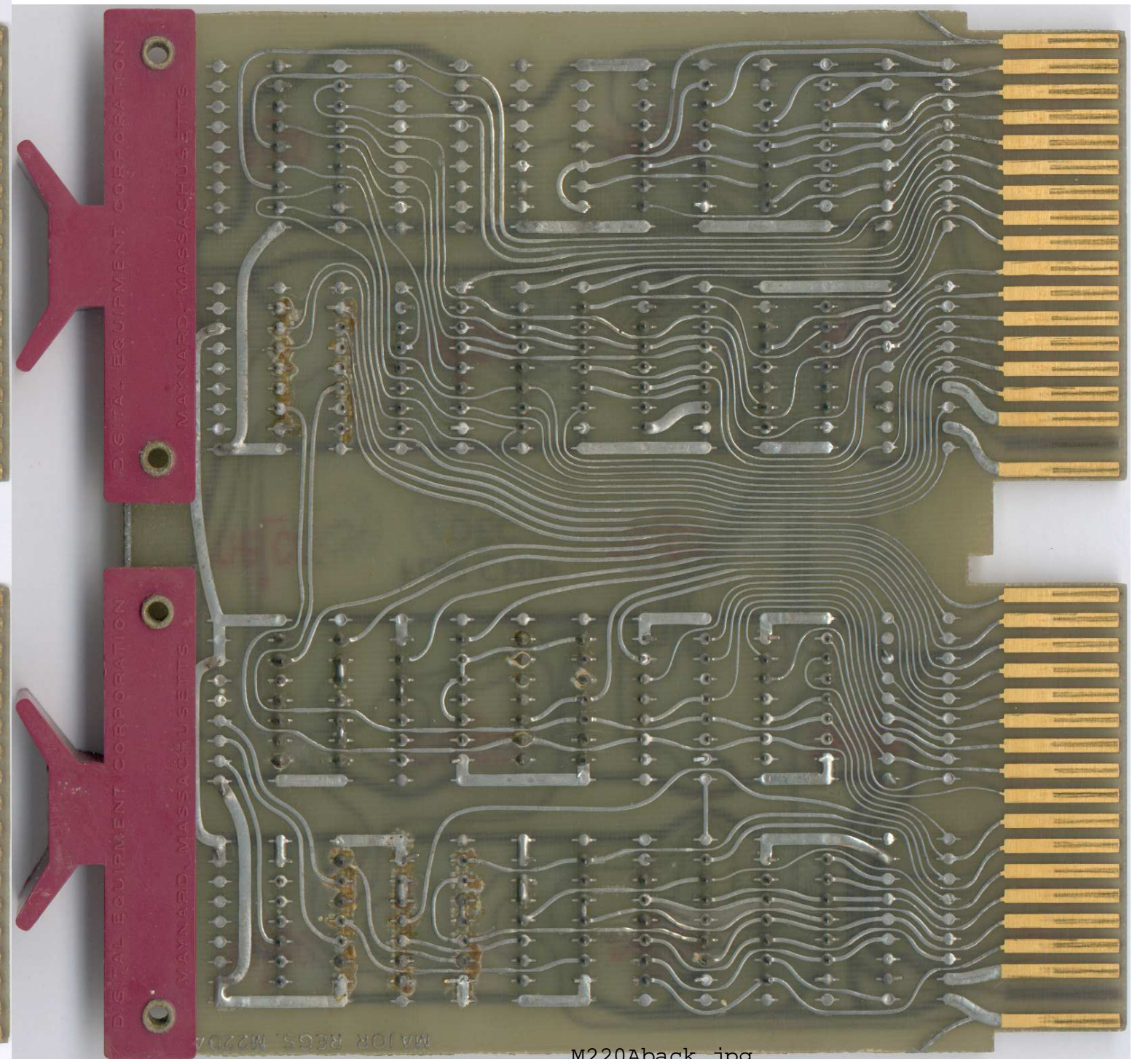
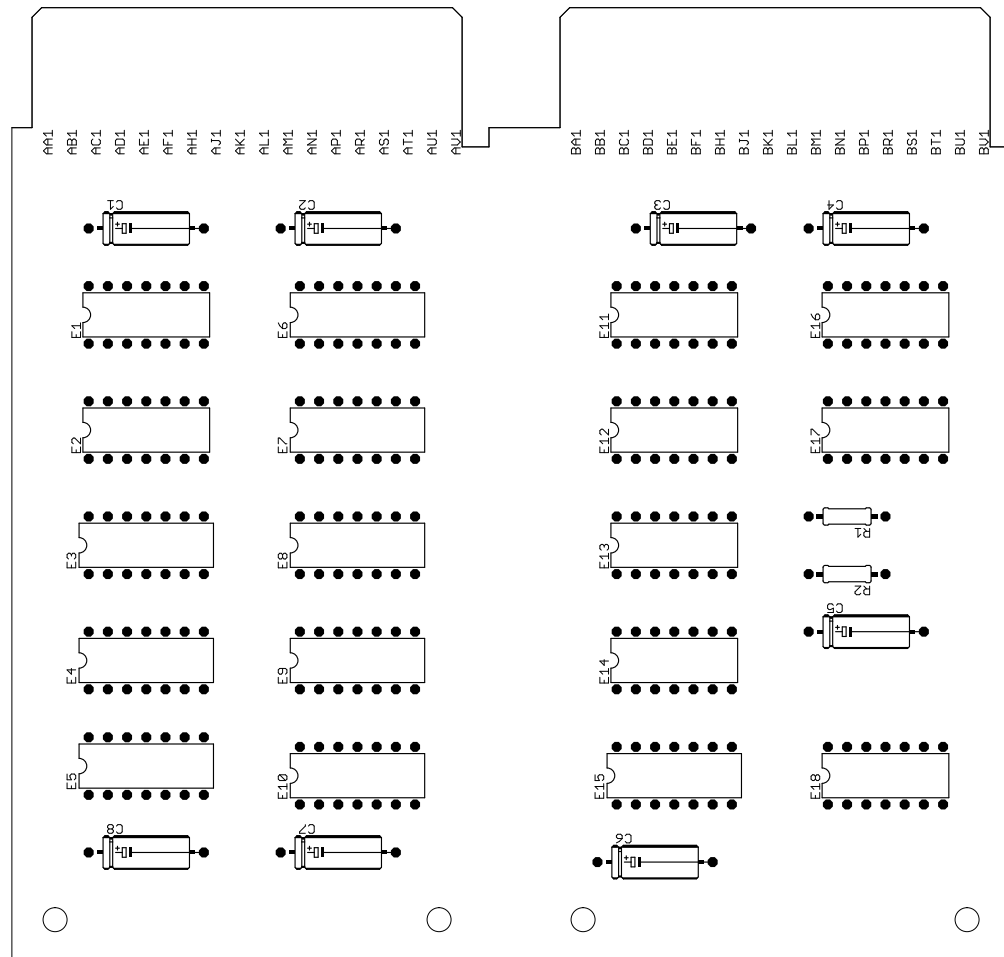


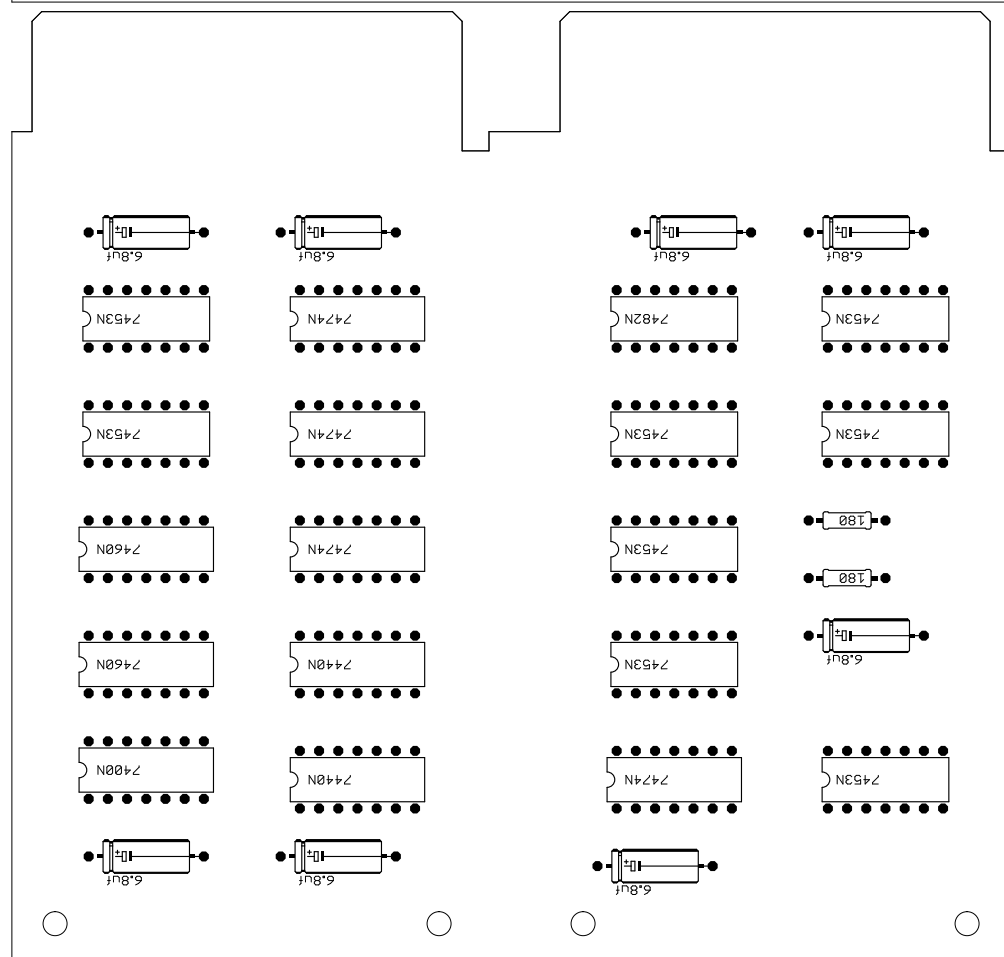
M220Afront.jpg



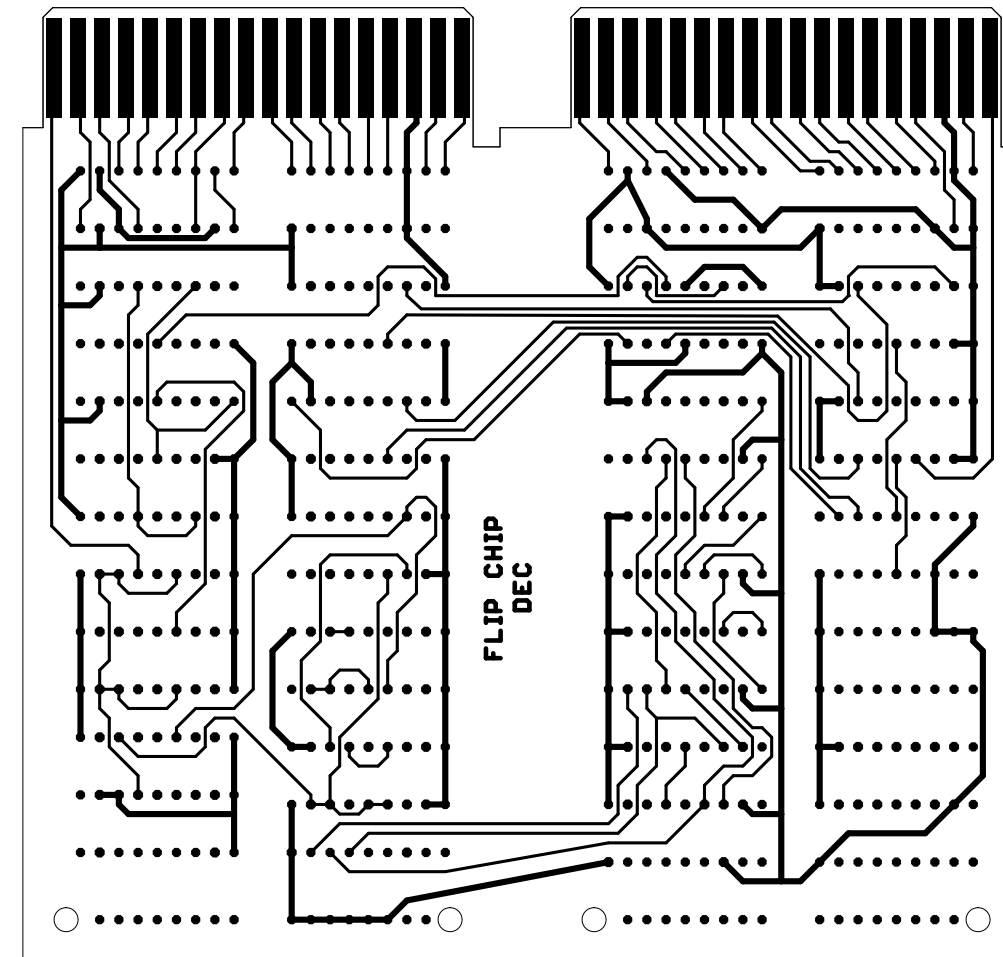
M220Aback.jpg



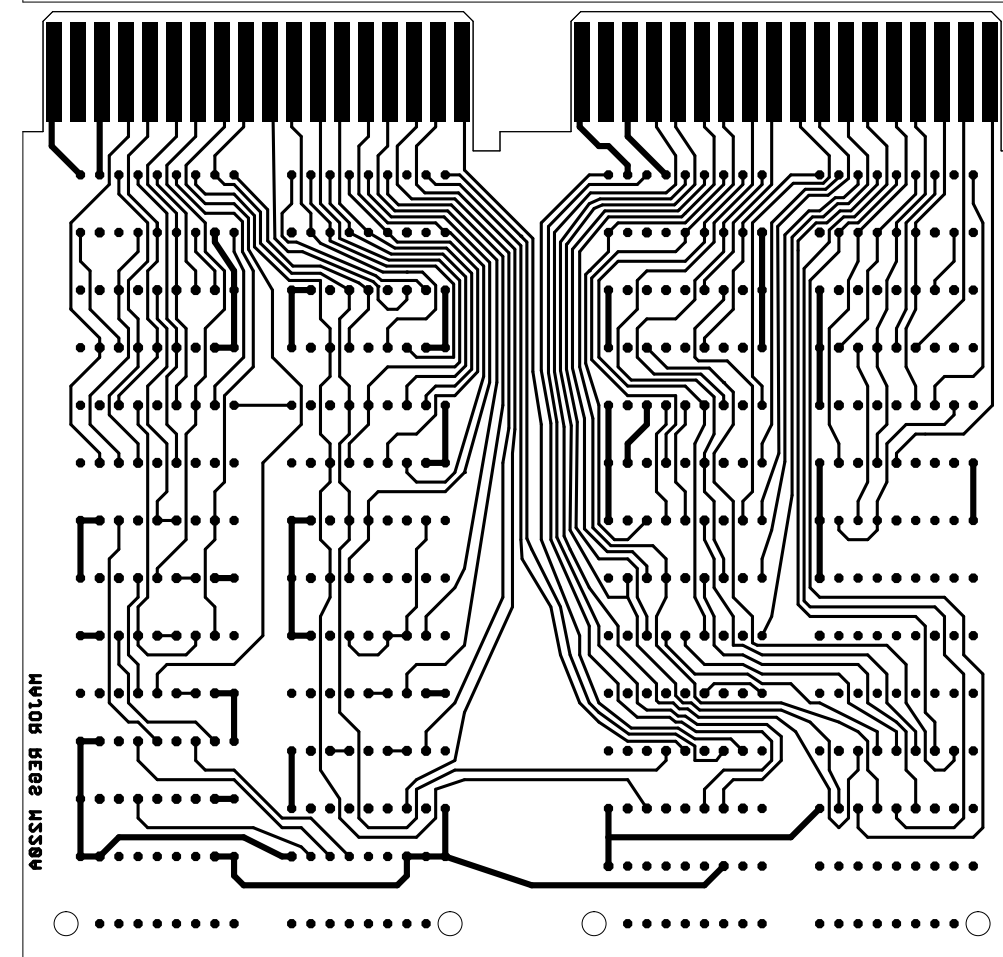
Component Names



Component Values



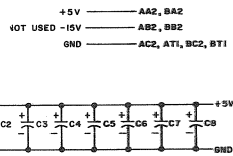
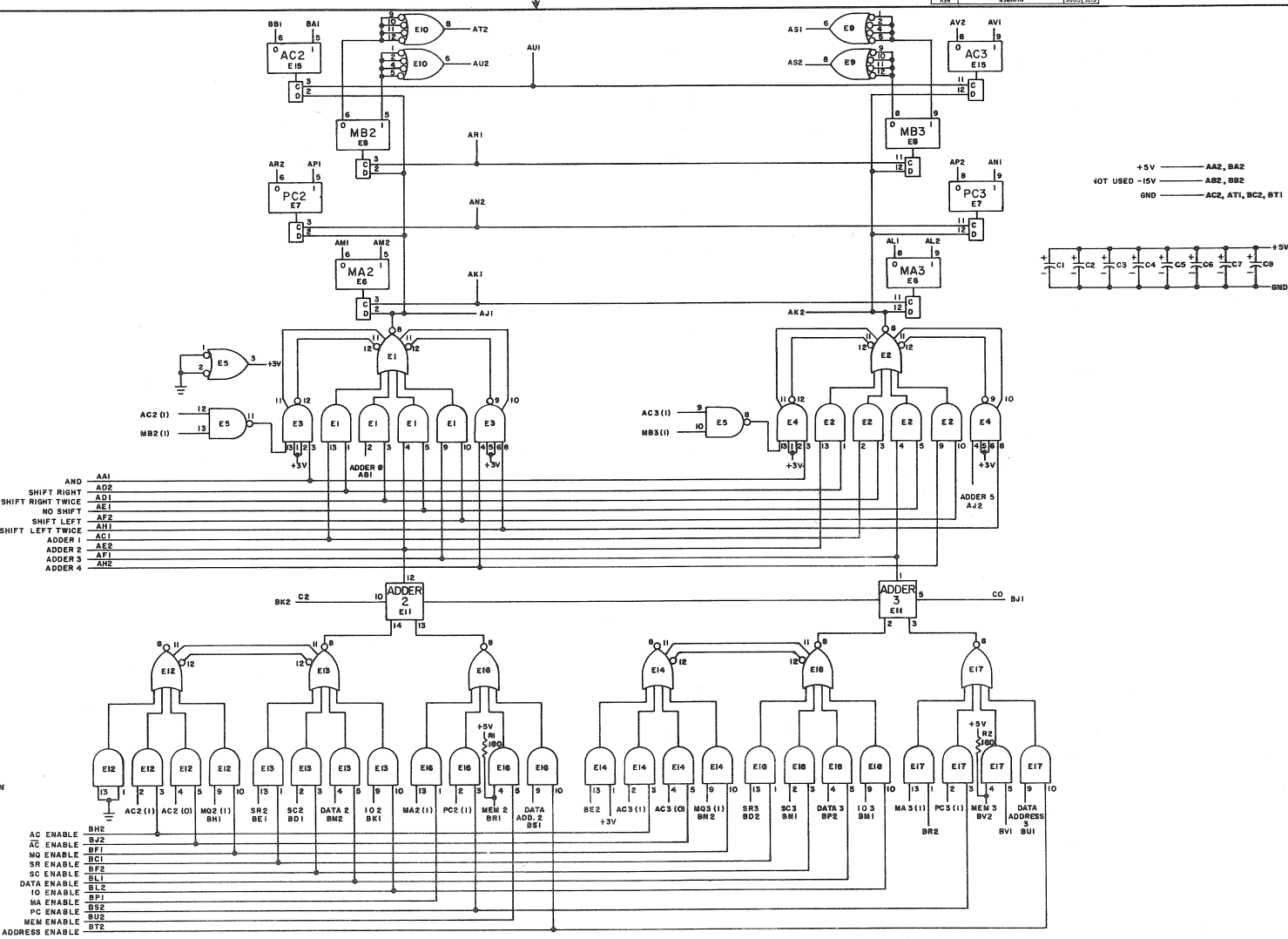
Component Side Etch



Solder Side Etch

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1-0-022M CS
 NUMBER 1250 1251 1252

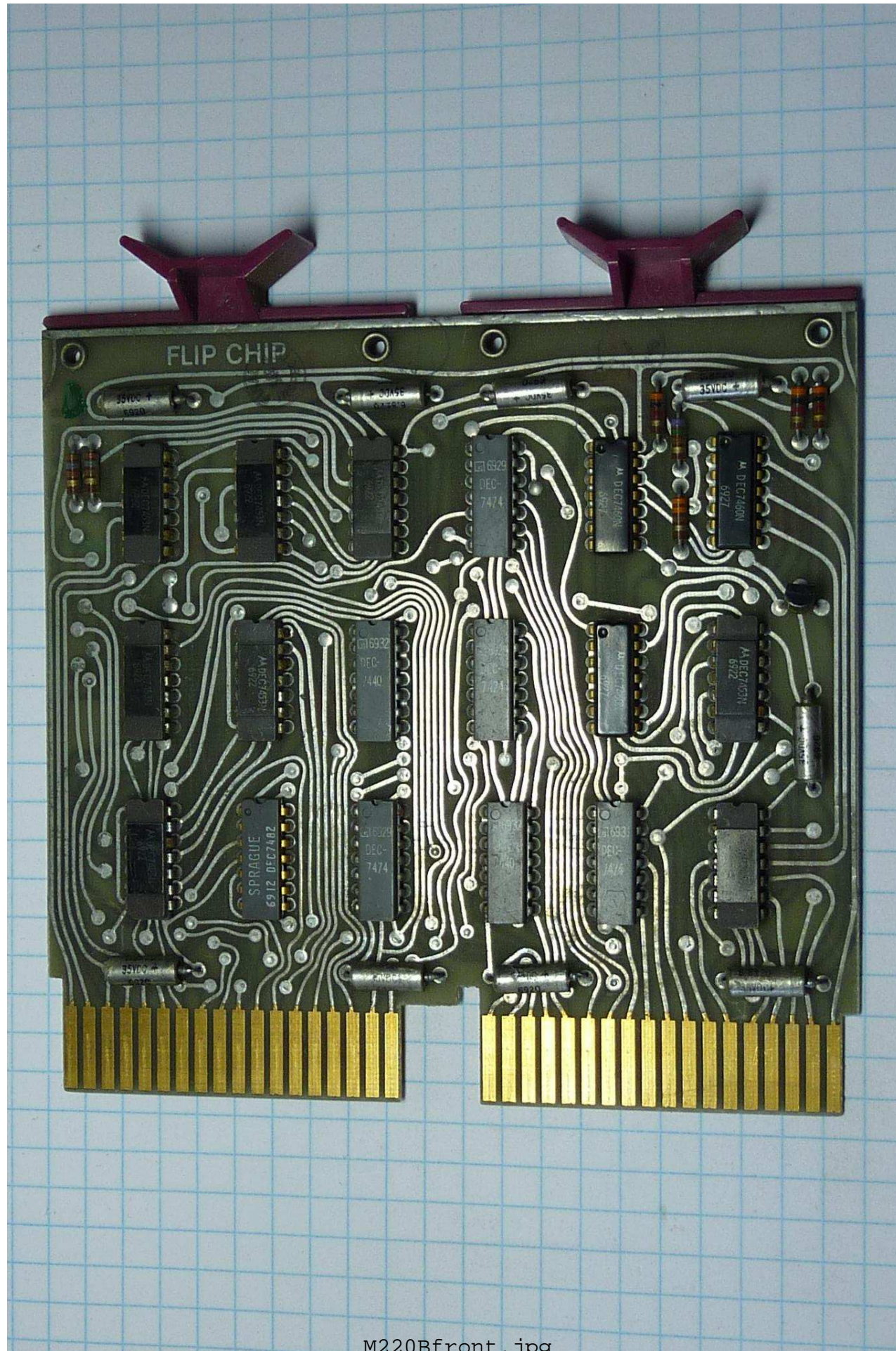


UNLESS OTHERWISE INDICATED:
 E5, E7, E9, E16 ARE DEC7424N
 E5 IS DEC7400N
 E3 & E4 ARE DEC7460N
 E1, E2, E10, E13, E14, E16, E17, E18 ARE DEC7455N
 E11 IS DEC7482N
 PIN 7 ON EACH IC EXCEPT E10 = GND
 PIN 11 ON E10 = +5V
 PIN 14 ON EACH IC EXCEPT E10 = +5V
 PIN 4 ON E10 = +5V
 RESISTORS ARE 1/4W; 10%
 CAPACITORS ARE 0.01 MFD, 35V, 20%

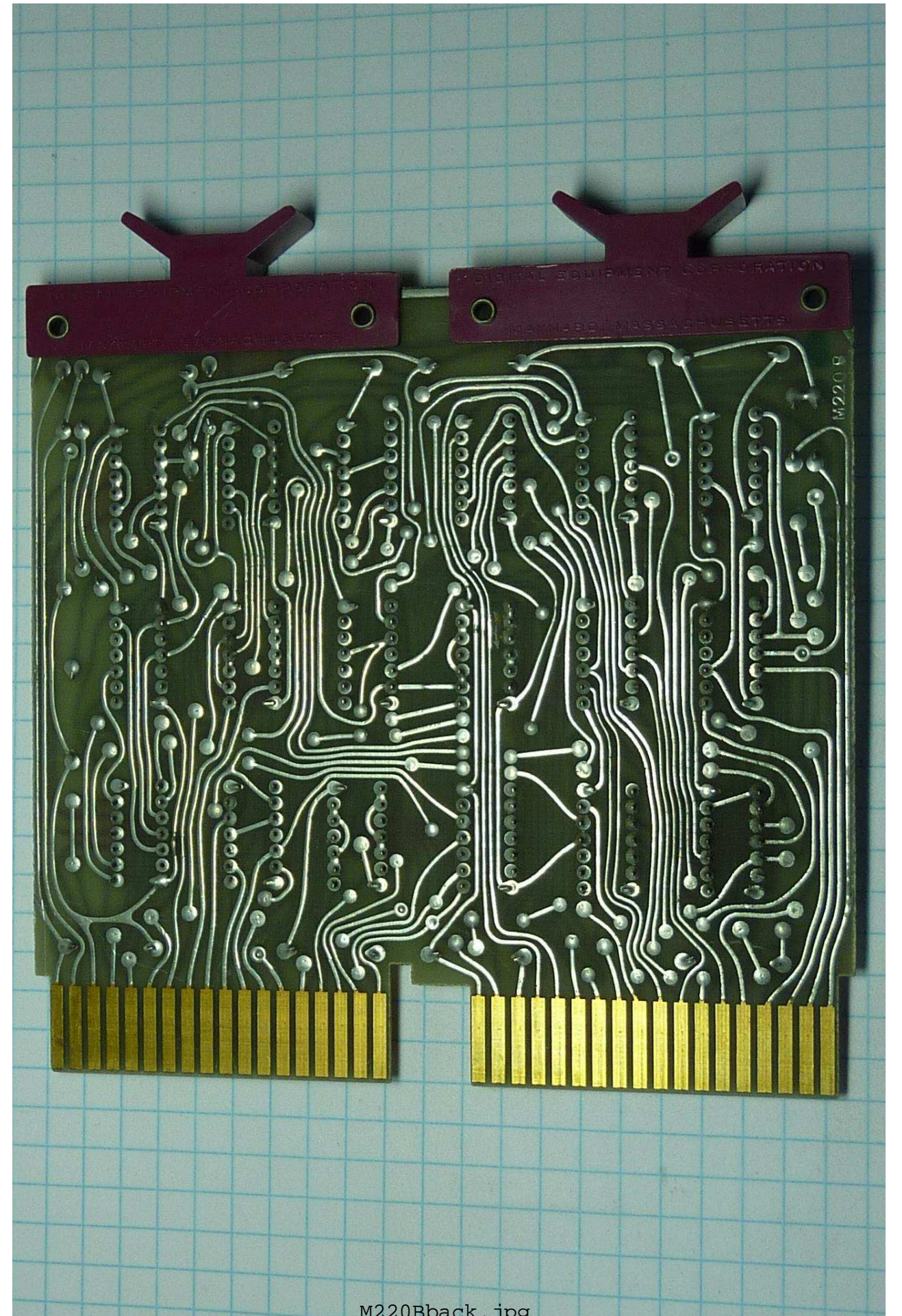
- AC ENABLE BH2
- AC ENABLE BJ2
- MC ENABLE BF1
- DCI BCI
- SR ENABLE BF2
- SC ENABLE BCI
- DATA ENABLE BL1
- IO ENABLE BL2
- MA ENABLE BP1
- PC ENABLE BS2
- MEM ENABLE BU2
- DATA ADDRESS ENABLE BT2

REVISIONS DATE BY	DATE 3-19-67	TRANSISTOR & DIODE CONVERSION CHART				TITLE MAJOR REGISTERS M220
		DEC	EIA	DEC	EIA	
DESIGNED BY W. J. ...		CHECKED BY ...		DRAWN BY ...		
DATE 3-19-67		DATE ...		DATE ...		

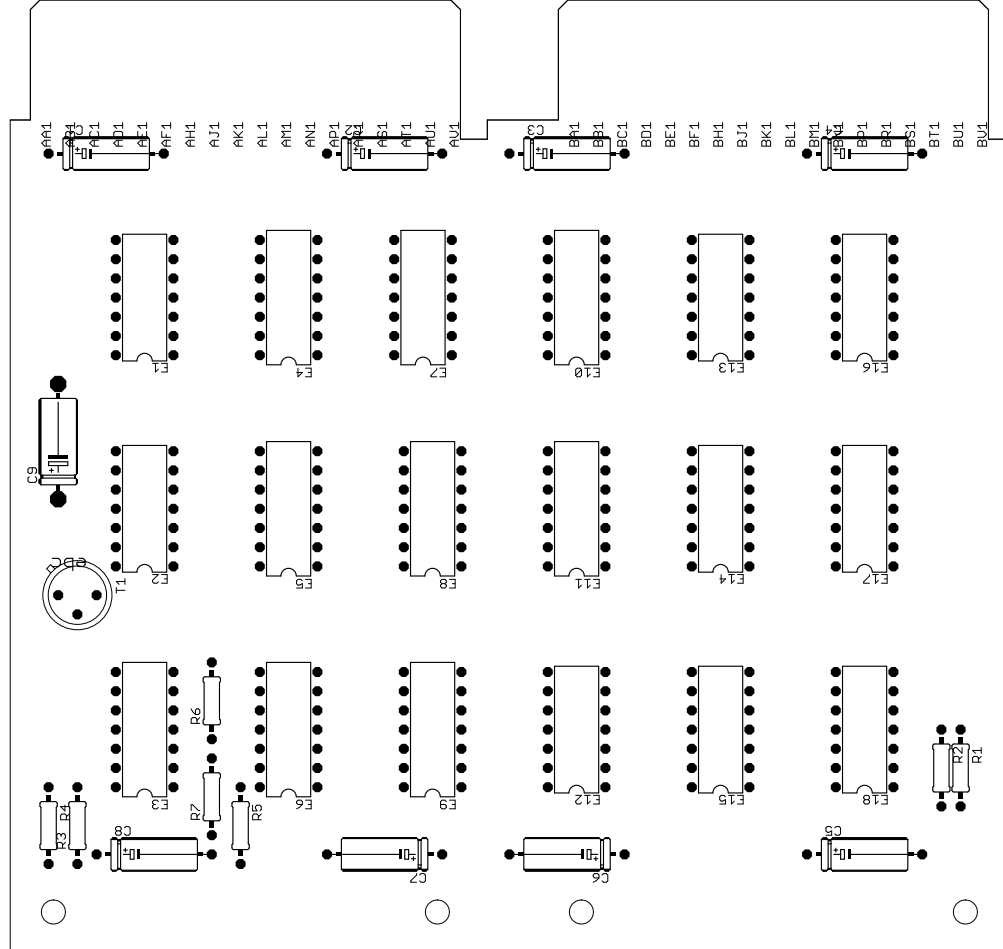
CORPORATION
 PRINTED CIRCUIT REV. 1A



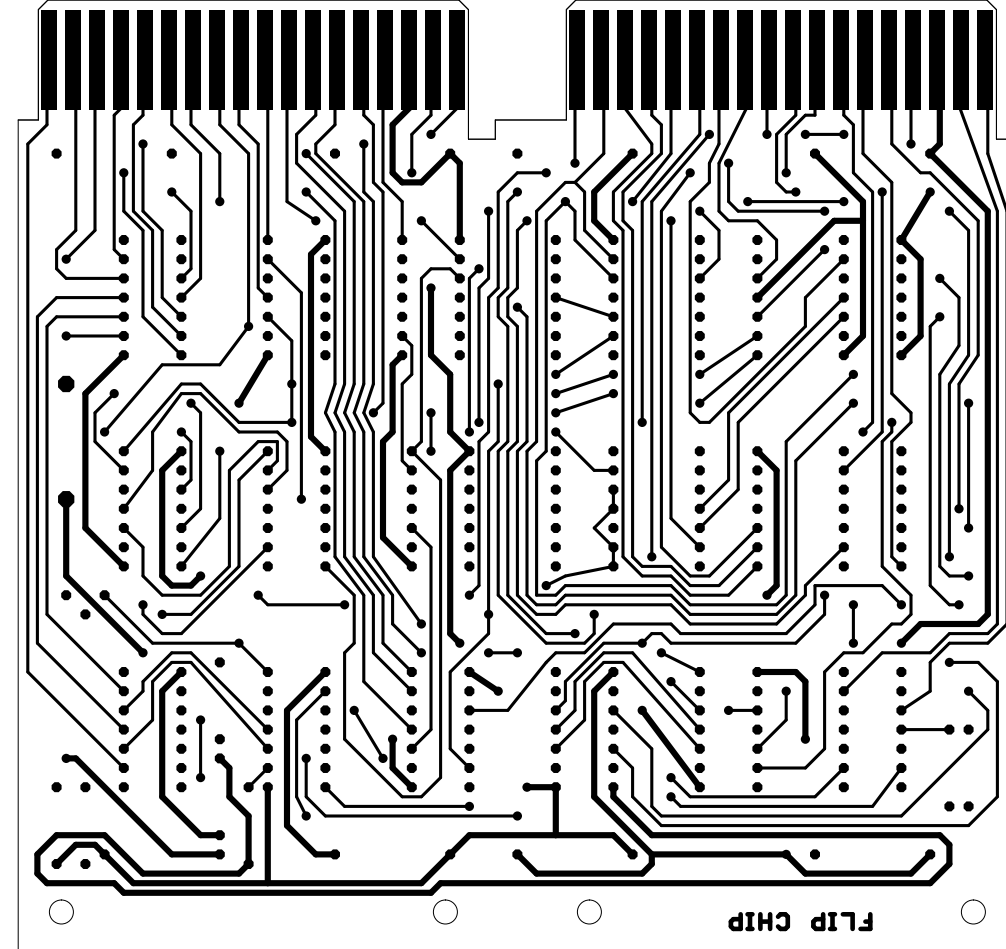
M220Bfront.jpg



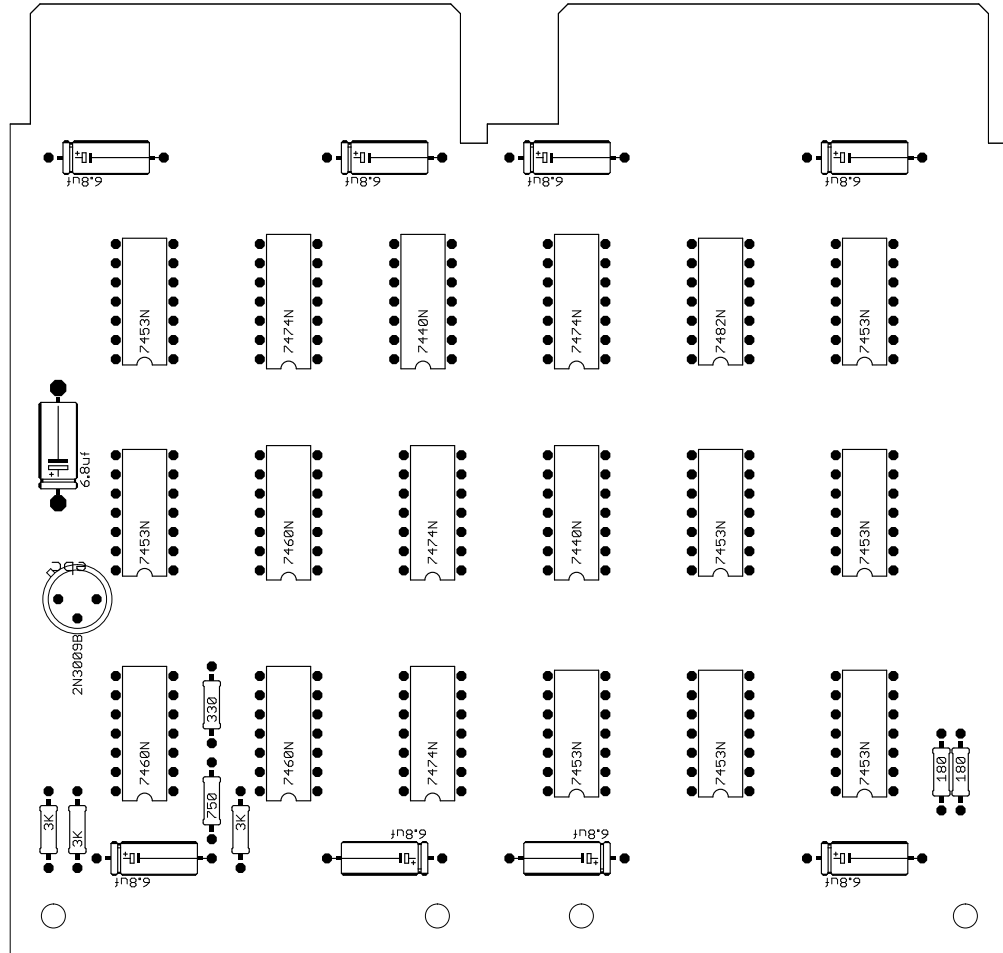
M220Bback.jpg



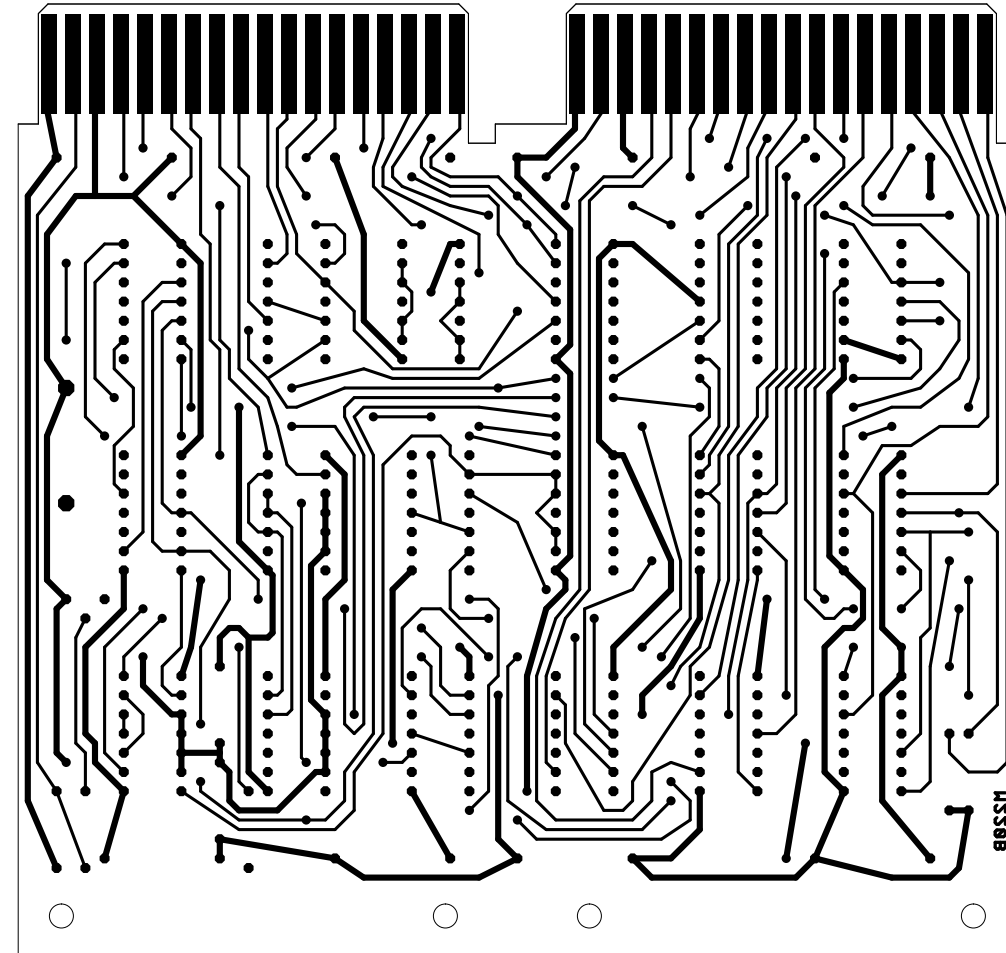
Component Names



Component Side Etch



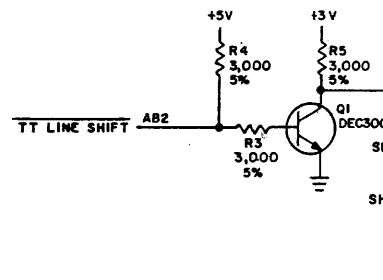
Component Values



Solder Side Etch

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REV. 1
DATE 3-11-67
BY M. VALLER

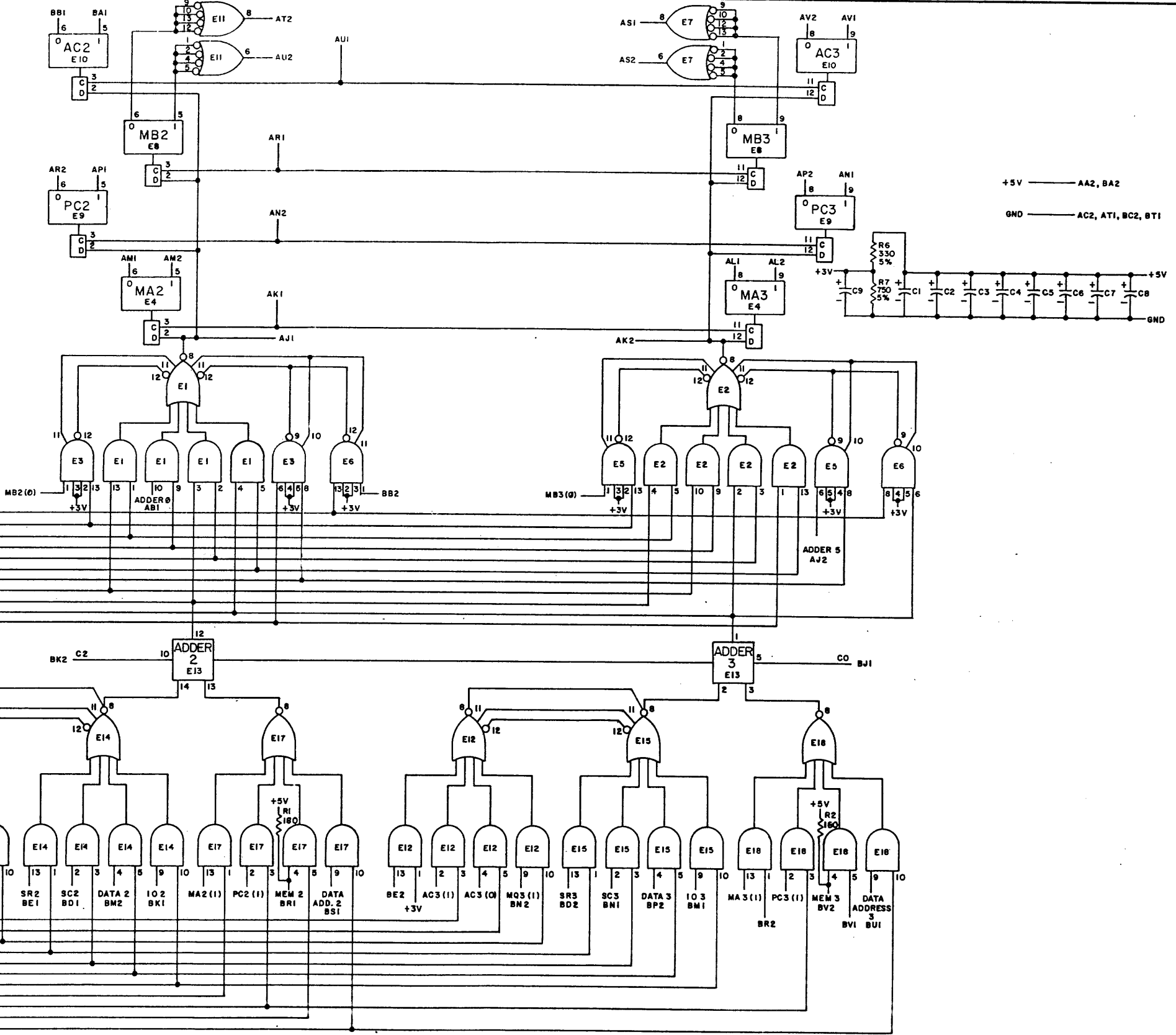


- AND AAI
- SHIFT RIGHT AD2
- SHIFT RIGHT TWICE AD1
- NO SHIFT AE1
- SHIFT LEFT AF2
- SHIFT LEFT TWICE AH1
- AC1
- ADDER 1 AE2
- ADDER 2 AF1
- ADDER 3 AH2
- ADDER 4

UNLESS OTHERWISE INDICATED:
E4, E8, E9, E10 ARE DEC7474N
E3, E5, E6 ARE DEC7460N
E1, E2, E12, E15, E14, E16, E17, E18 ARE DEC7483N
E13 IS DEC7482N
PIN 7 ON EACH IC EXCEPT E13 = GND
PIN 11 ON E13 = GND
PIN 14 ON EACH IC EXCEPT E13 = +5V
PIN 4 ON E13 = +5V
RESISTORS ARE 1/4W; 10%
CAPACITORS ARE 0.05 MFD, 35V, 20%
E7 & E11 ARE DEC7440N

- AC ENABLE BH2
- AC ENABLE BJ2
- BF1
- MQ ENABLE BC1
- SR ENABLE BF2
- SC ENABLE BL1
- DATA ENABLE BL2
- IO ENABLE BP1
- MA ENABLE BS2
- PC ENABLE BU2
- MEM ENABLE BT2
- DATA ADDRESS ENABLE

PARTS LIST A-PL-M220-0-0

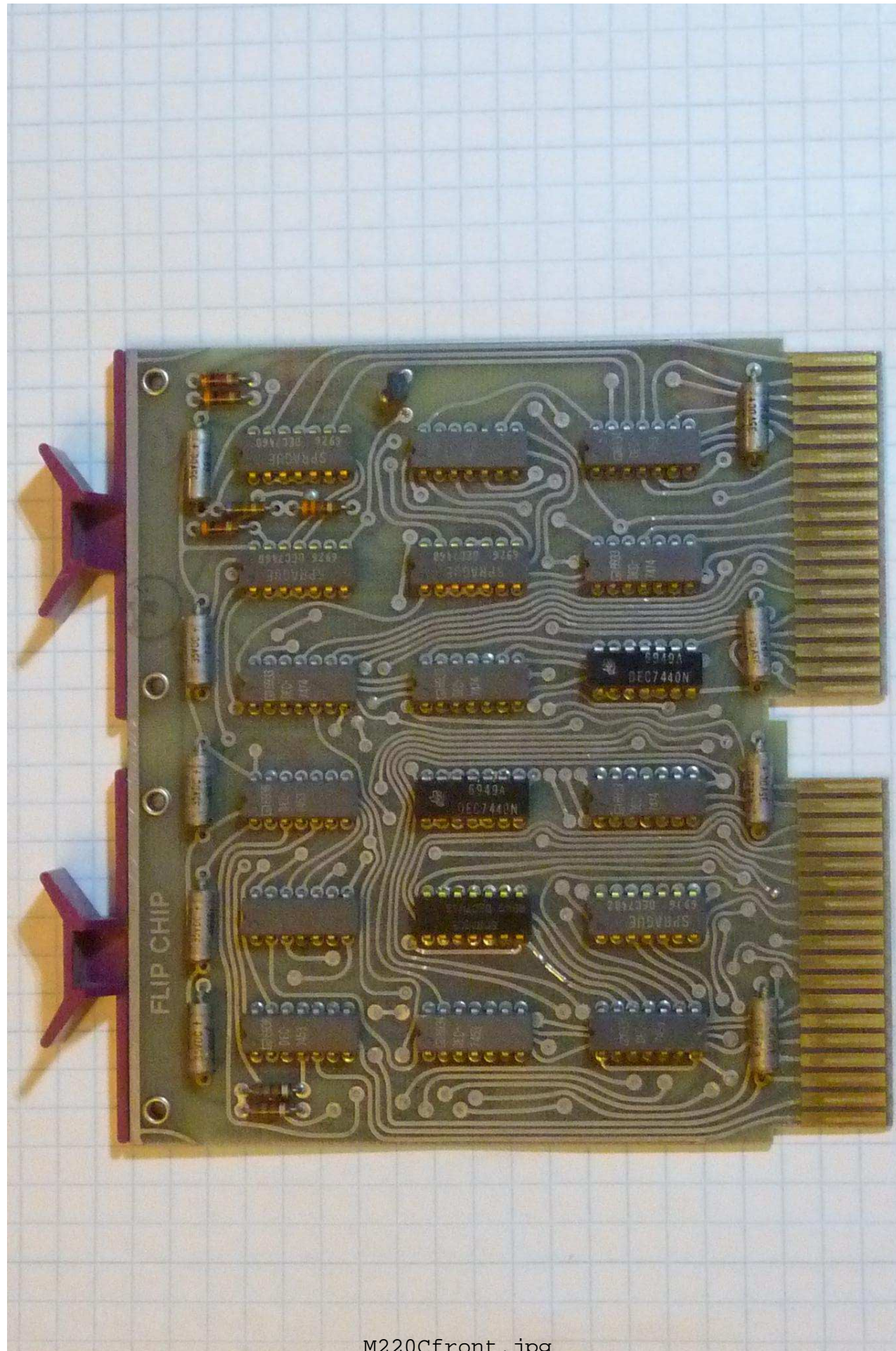


REV.	DATE	BY
1	3-11-67	M. VALLER
2		
3		

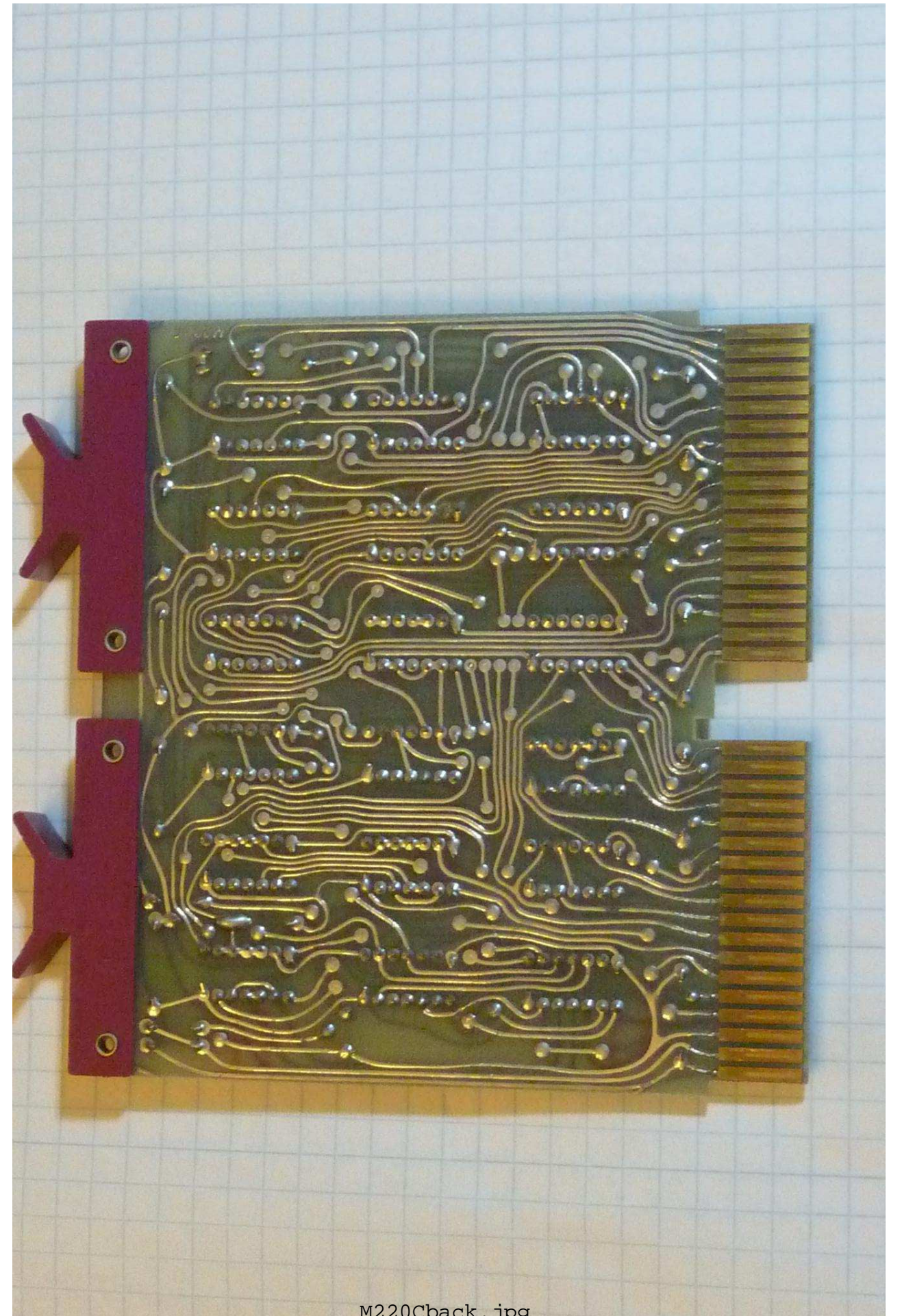
TRANSISTOR & DIODE CONVERSION CHART			
MANUFACTURER	TYPE	DC	EIA
DEC	3N3009	3N3009	

digital EQUIPMENT CORPORATION
MAJOR REGISTERS M220
REV. 1
DATE 3-11-67
BY M. VALLER

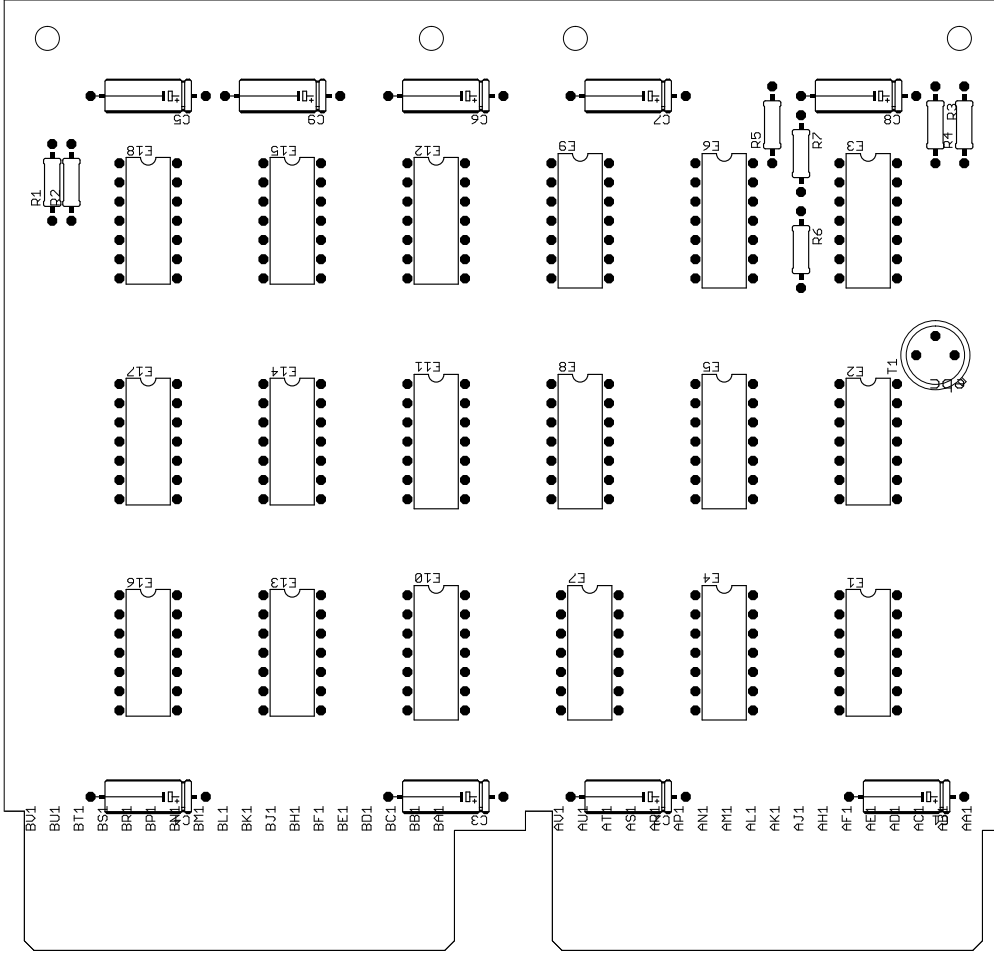
REV. 1
DATE 3-11-67
BY M. VALLER



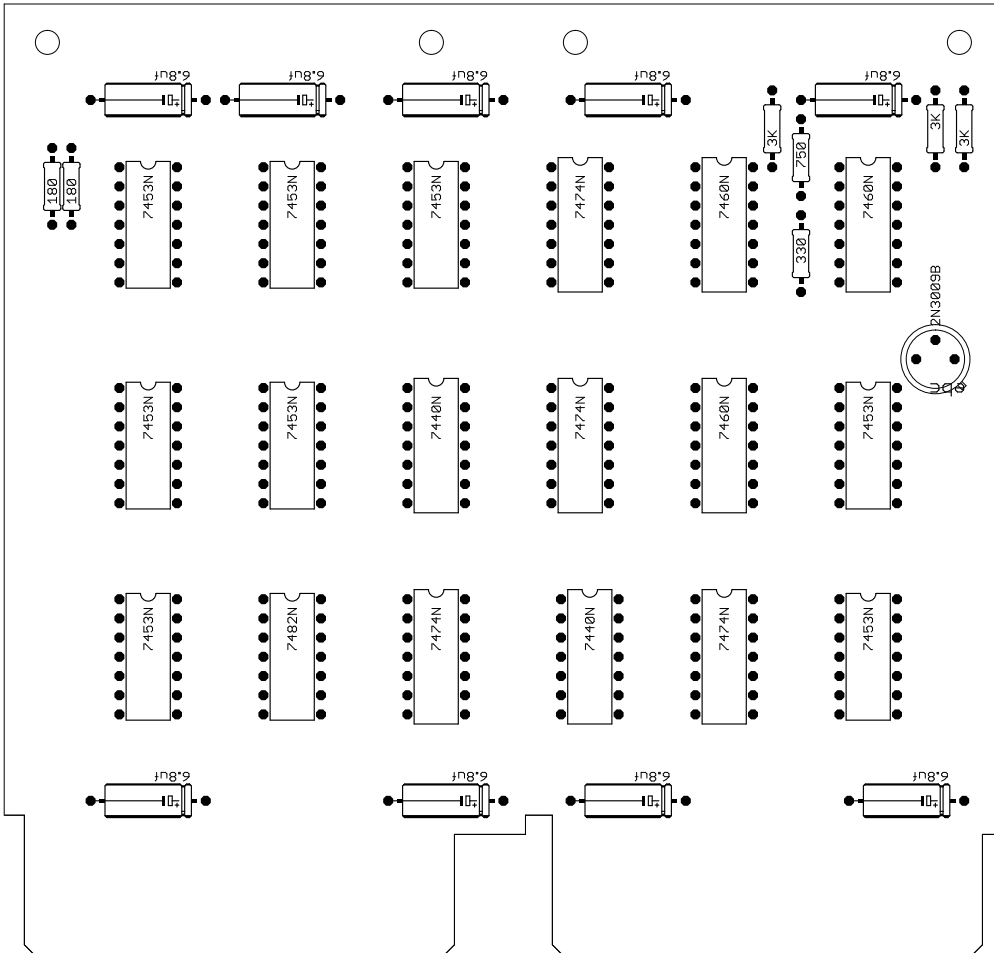
M220Cfront.jpg



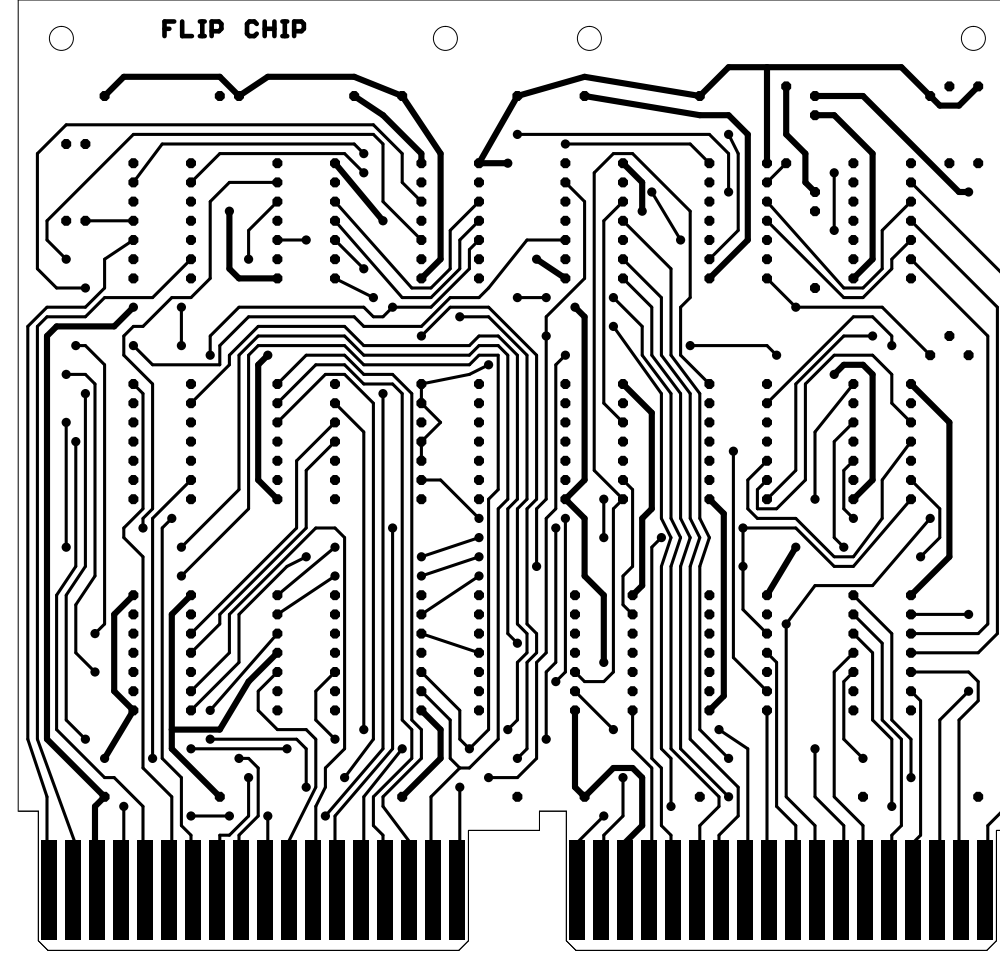
M220Cback.jpg



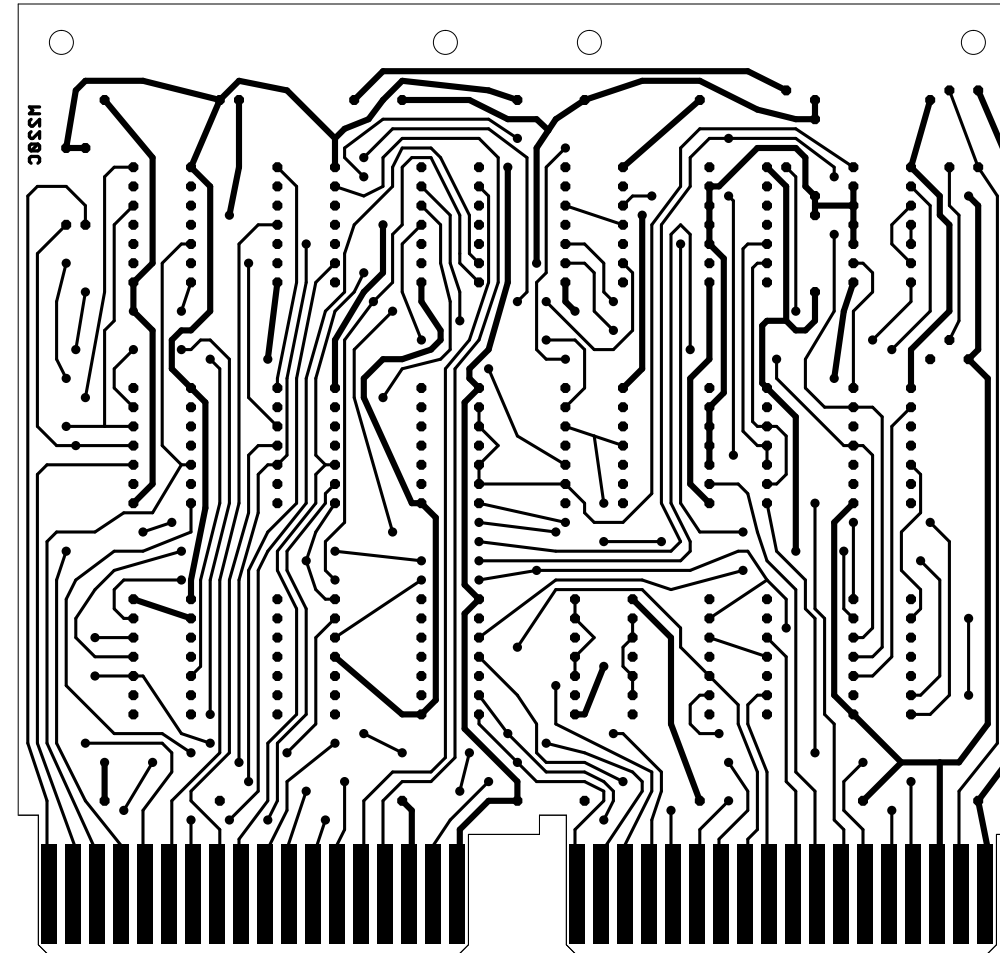
Component Names



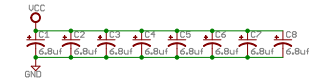
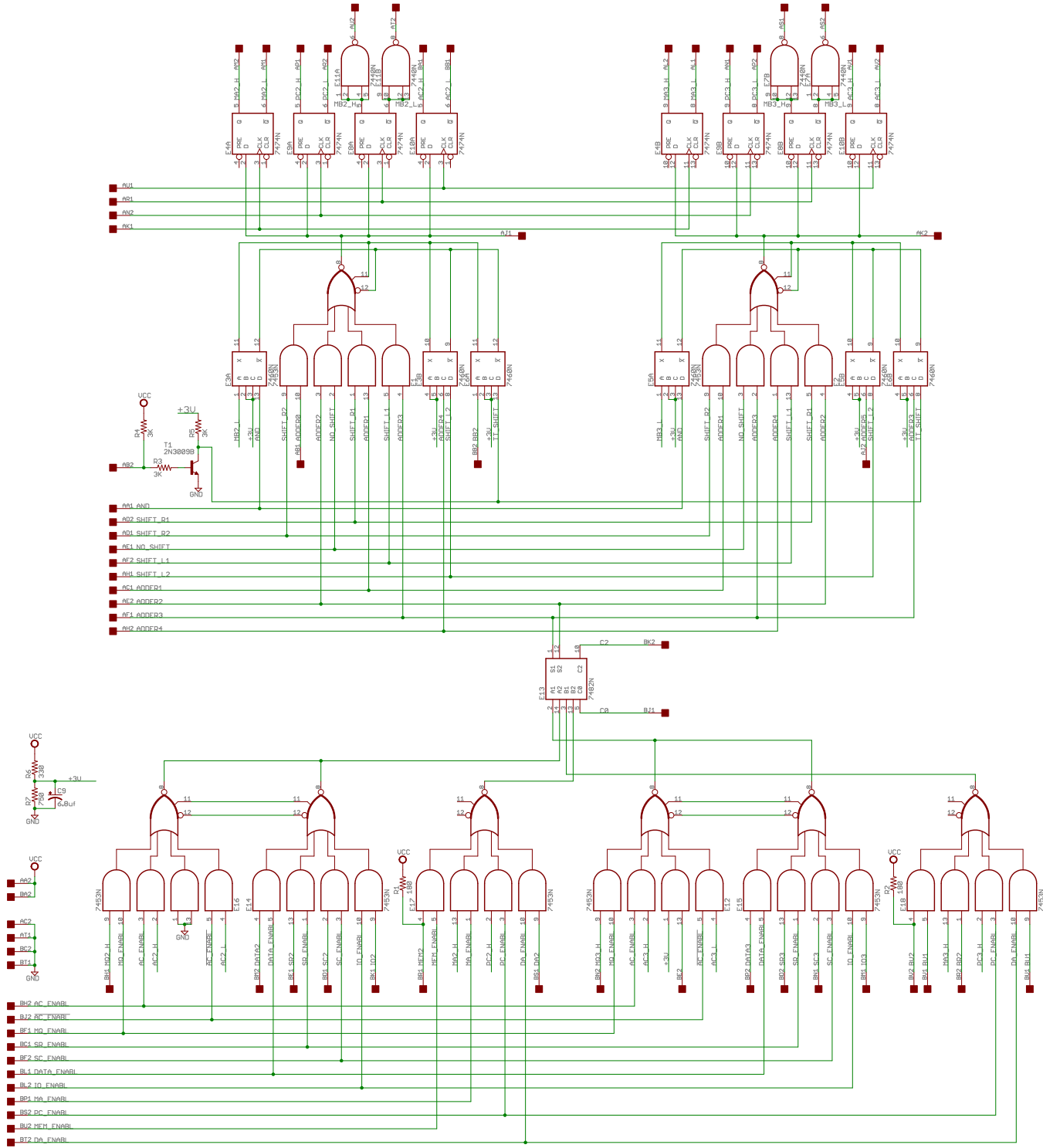
Component Values



Component Side Etch

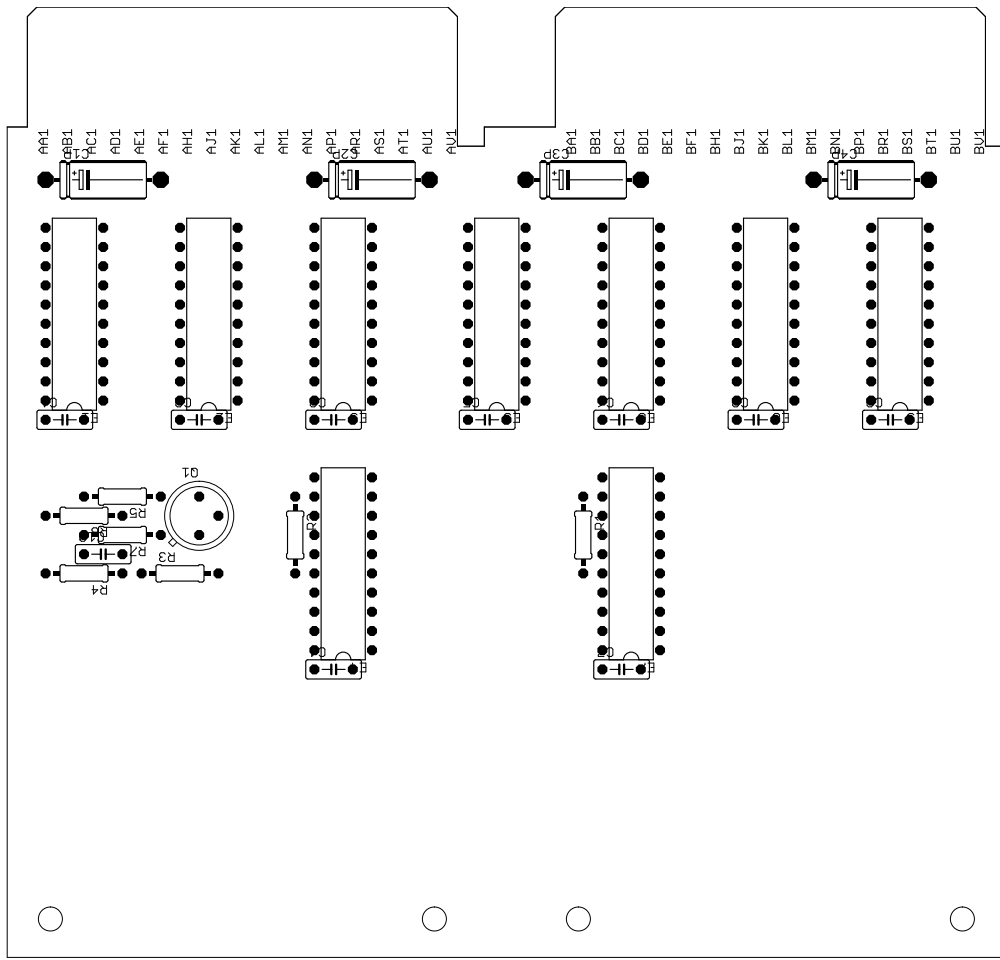


Solder Side Etch

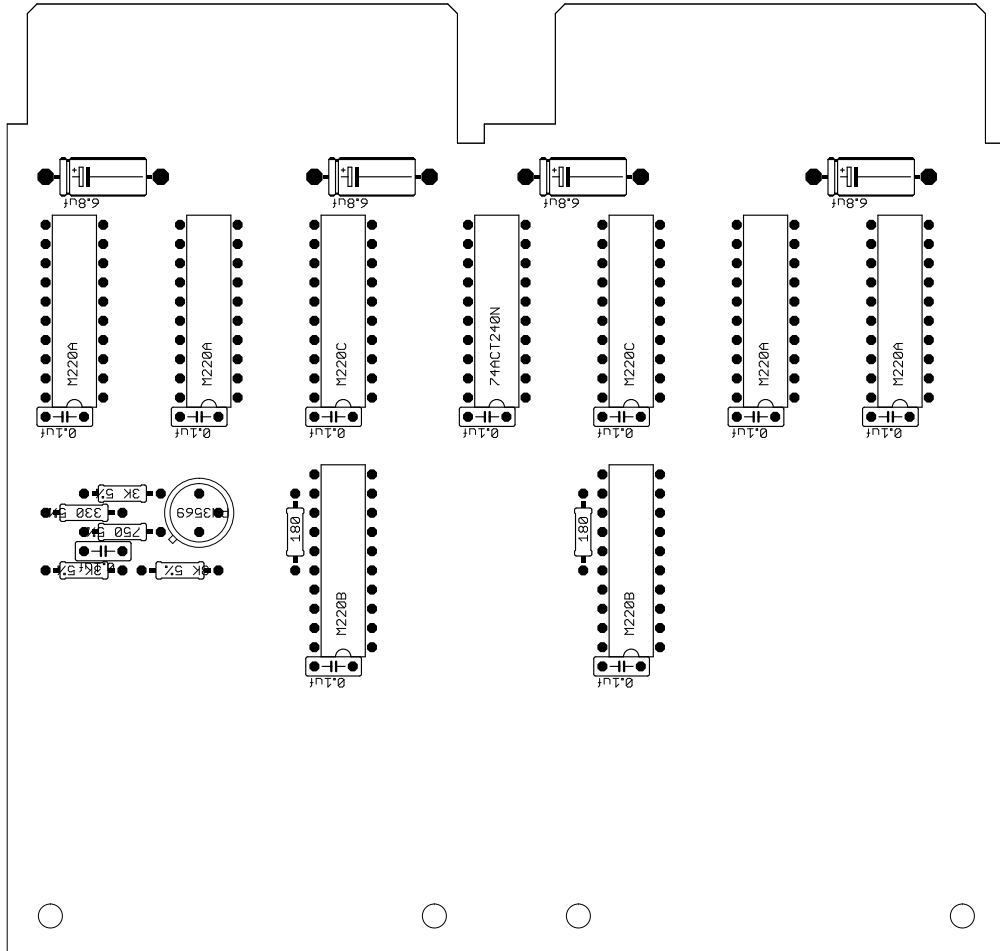


M220b with ECD applied.
OUTLINE=DOUBLE

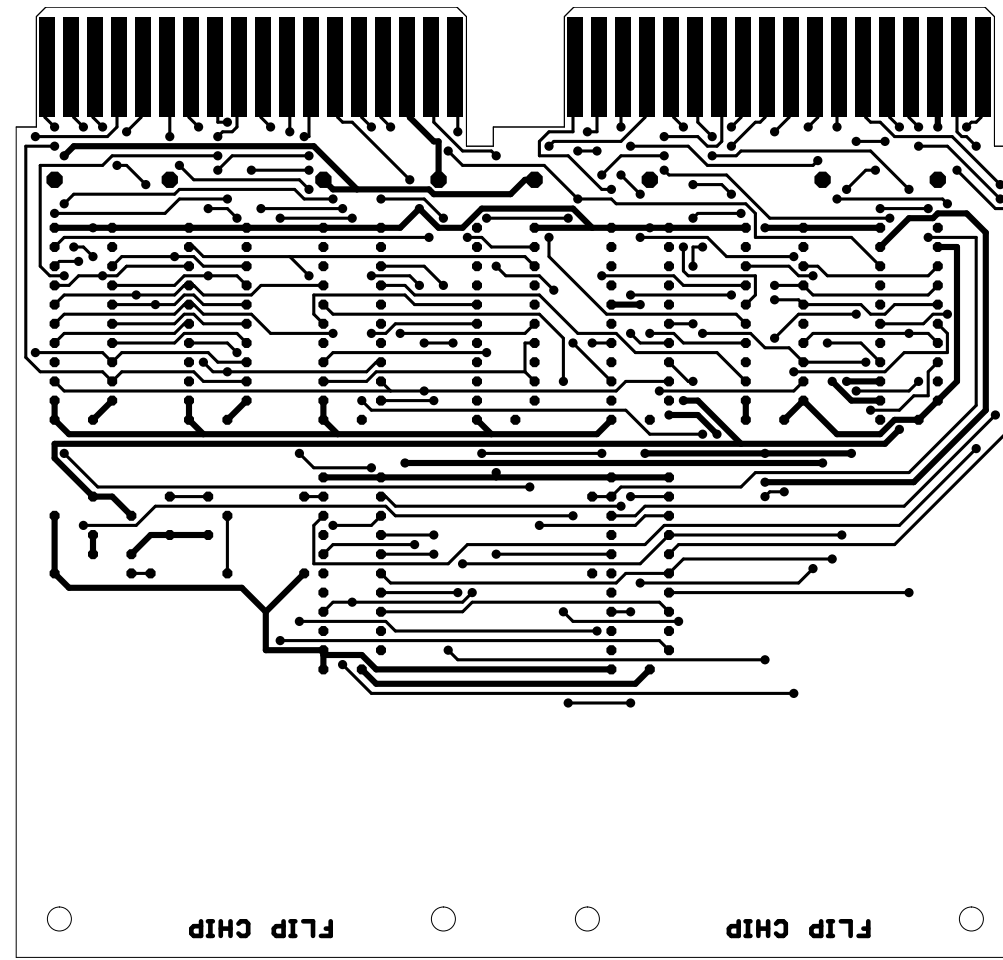
Major Registers M220	
TITLE: M220C	
Document Number: D-CS-M220-0-1	REV:
Date: 1/14/2017 10:25:21 AM	Sheet: 1/1



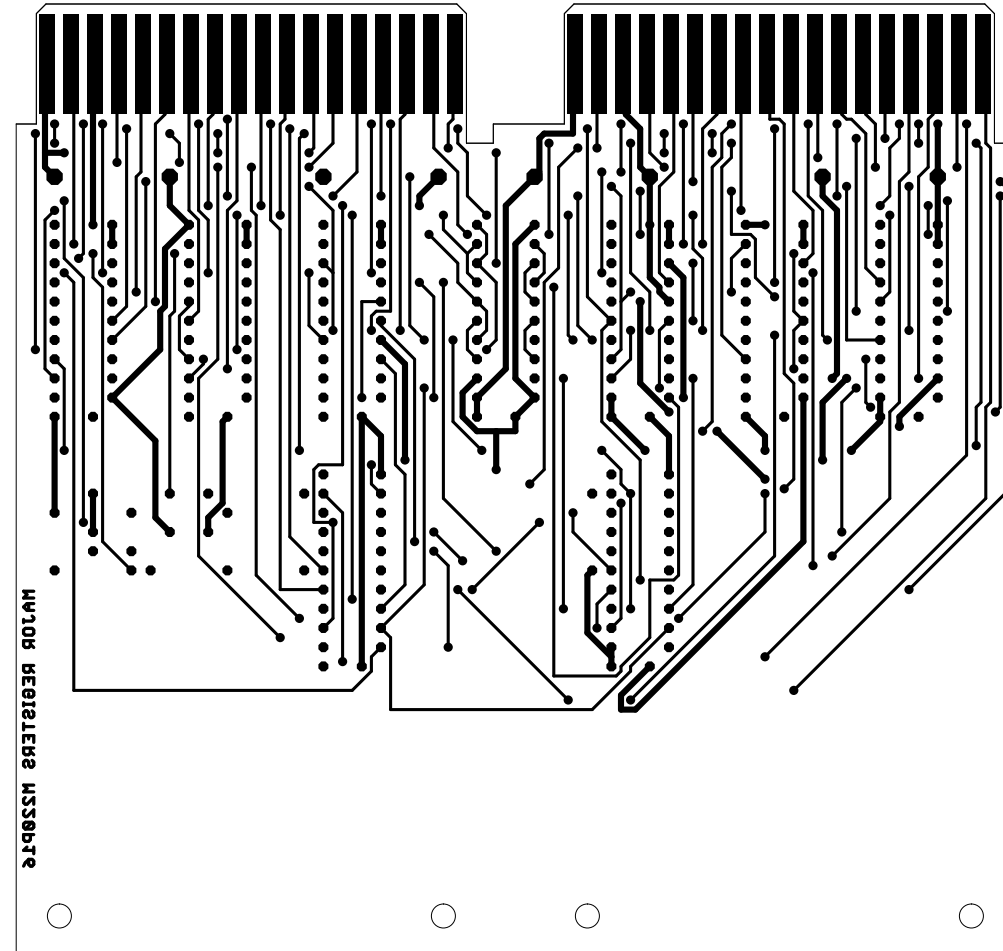
Component Names



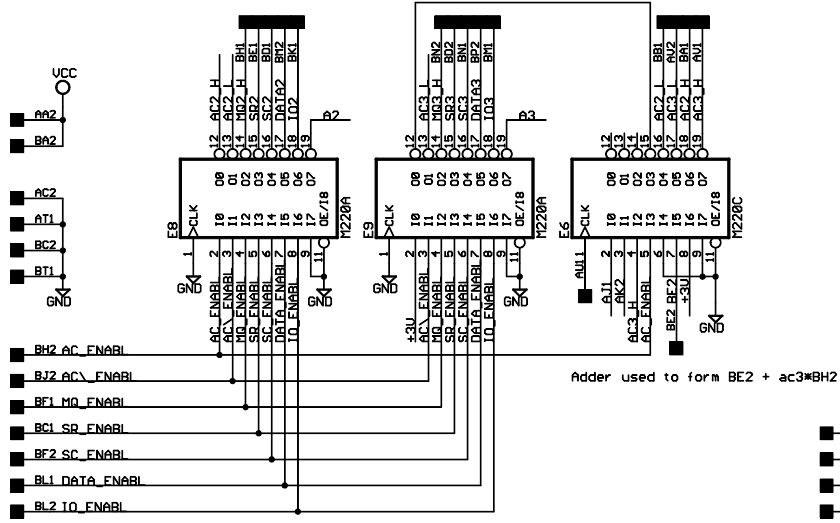
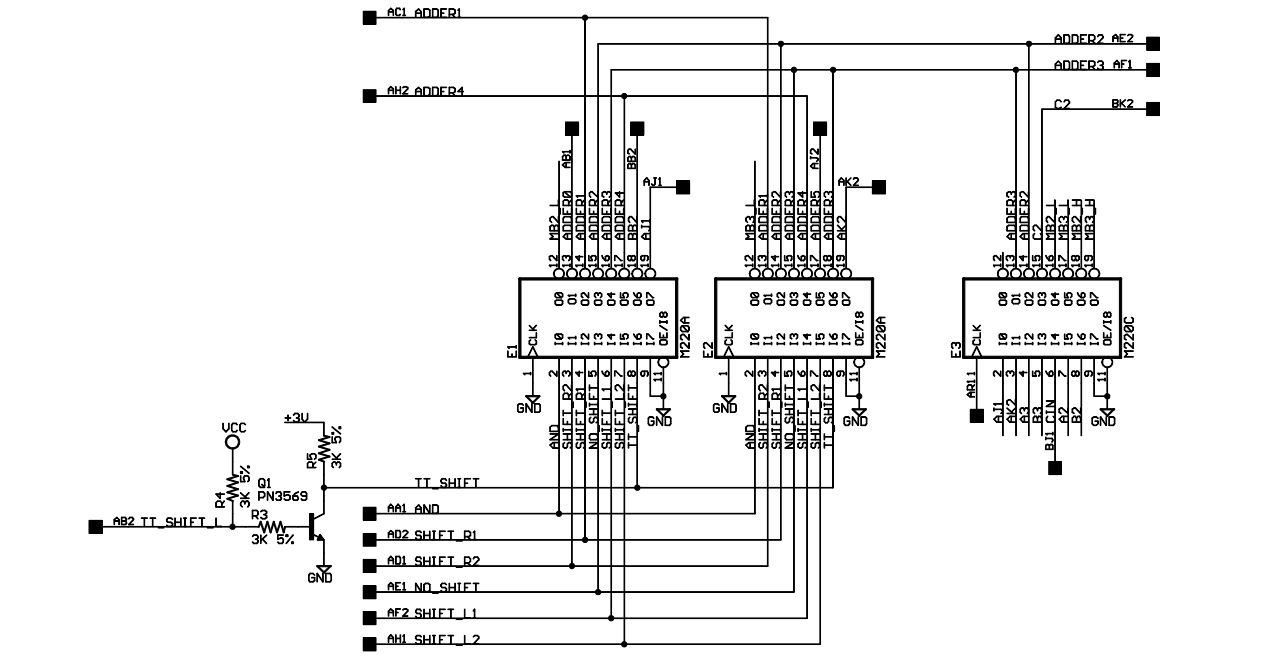
Component Values



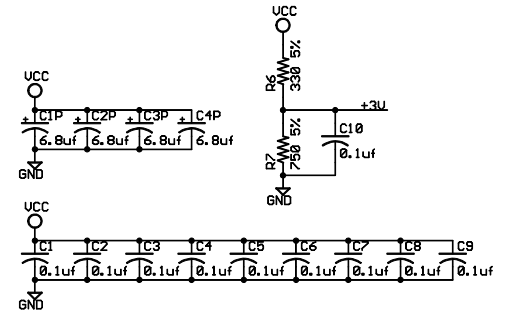
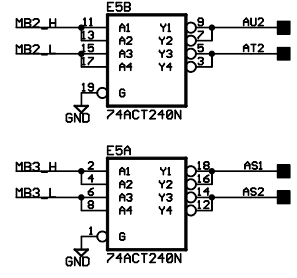
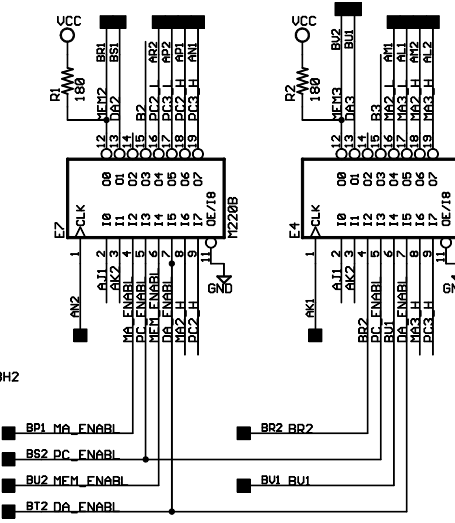
Component Side Etch



Solder Side Etch

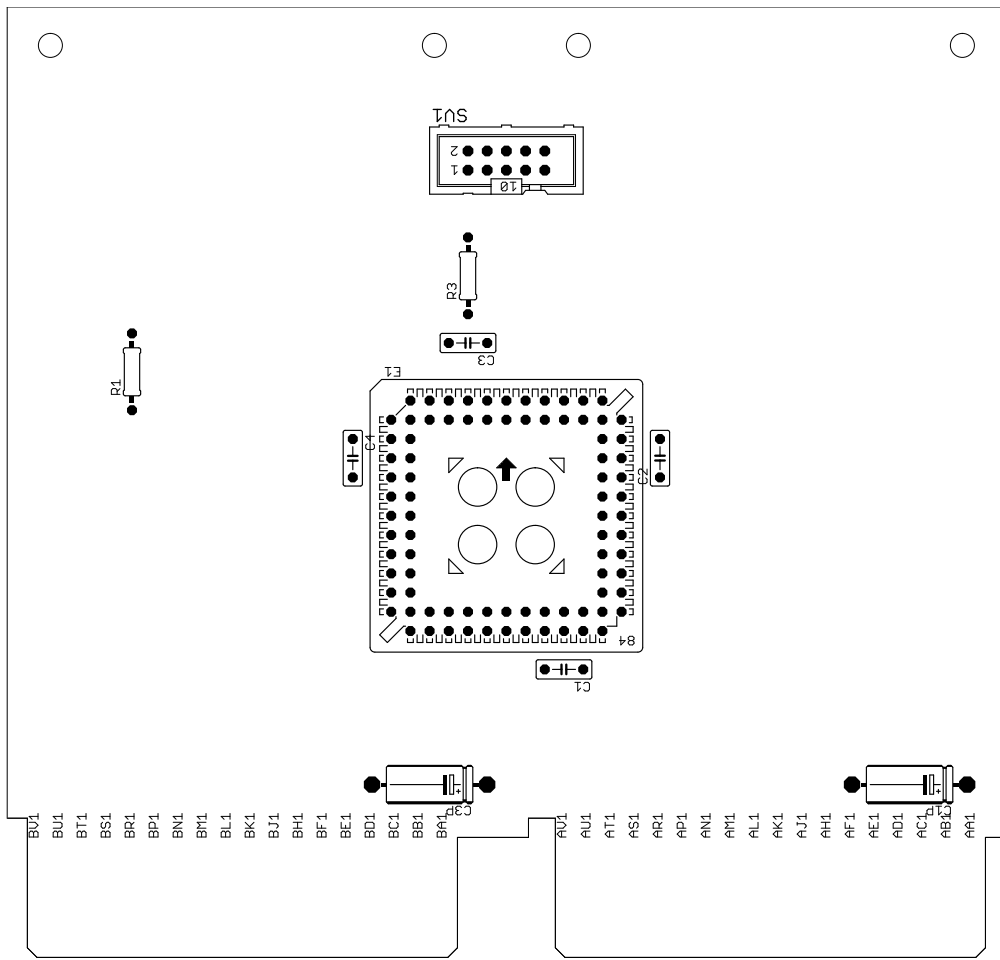


Adder used to form BE2 + ac3*BH2

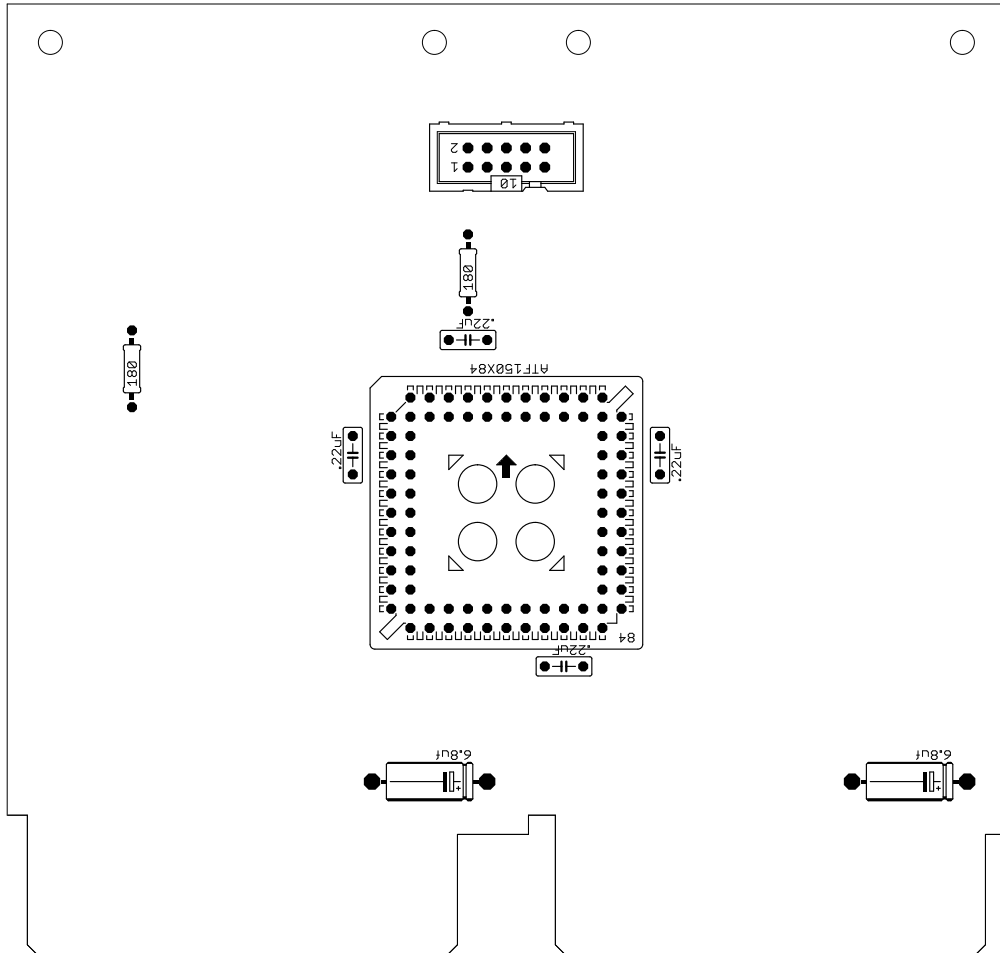


OUTLINE=DOUBLE

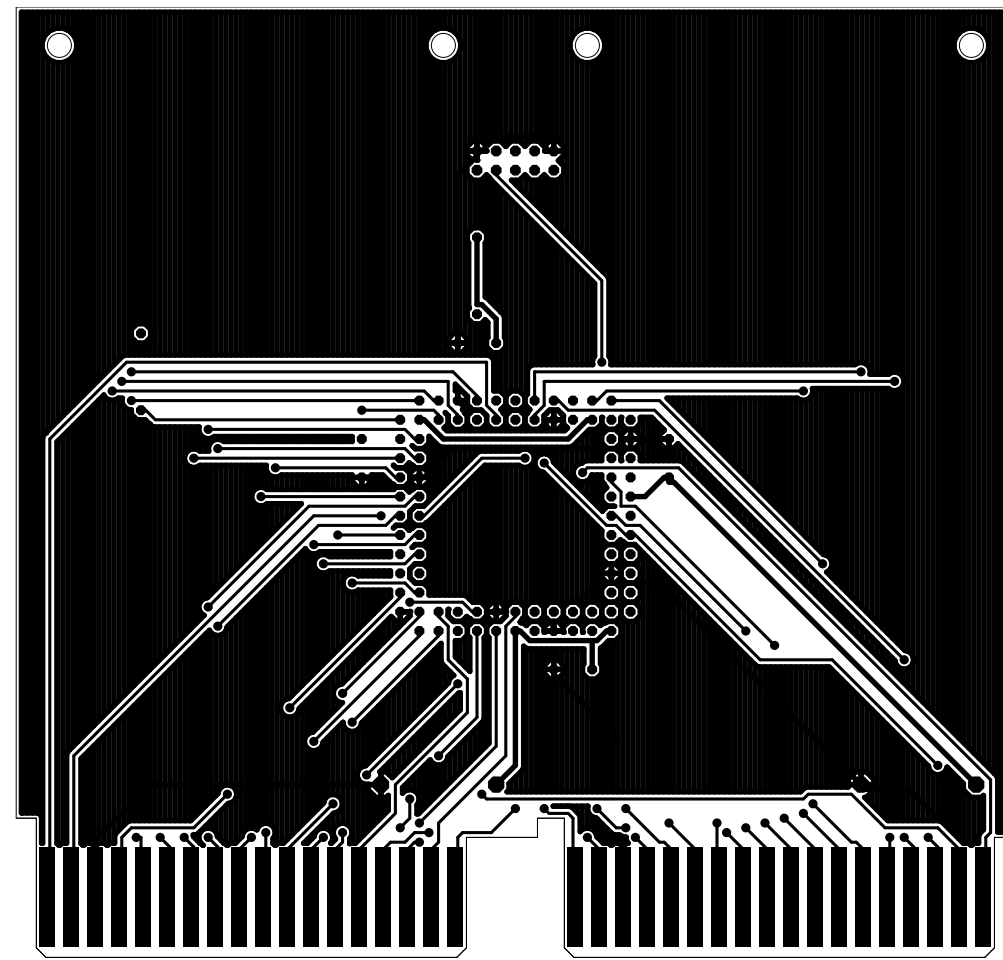
PAL16V8 Based Version of M2208	
TITLE: M220X	
Document Number: D-CS-M220-0-1	REV:
Date: 3/22/2013 08:05:02a	Sheet: 1/1



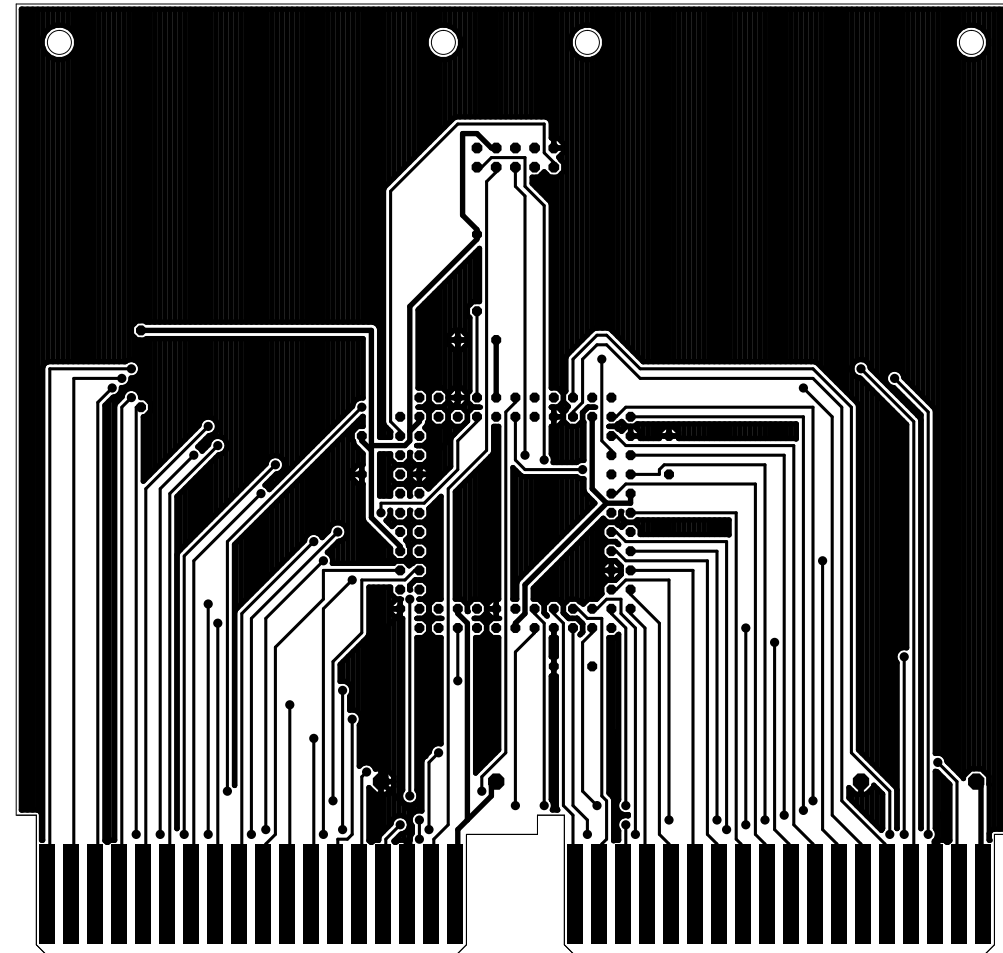
Component Names



Component Values



Component Side Etch

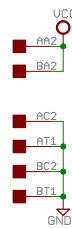
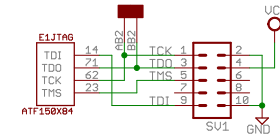
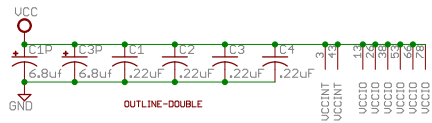
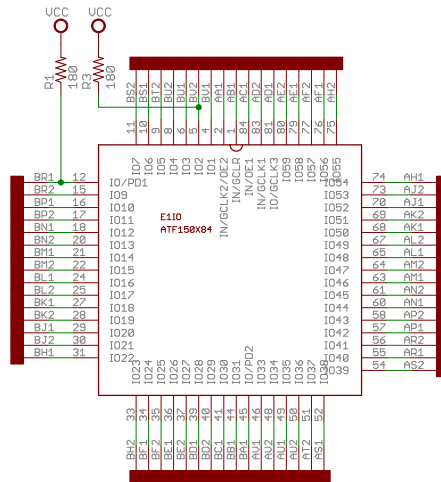


Solder Side Etch

M220 has 21 outputs:

- AE2 AR2
- AF1 AS1
- AJ1 AS2
- AK2 AT2
- AL1 AU2
- AL2 AV1
- AM1 AV2
- AM2 BA1
- AN1 BB1
- AP1 BK2
- AP2

TI_SHIFT not implemented -- no pins left.
(use JTAG pins?)



PAL Based Version of M220A/B

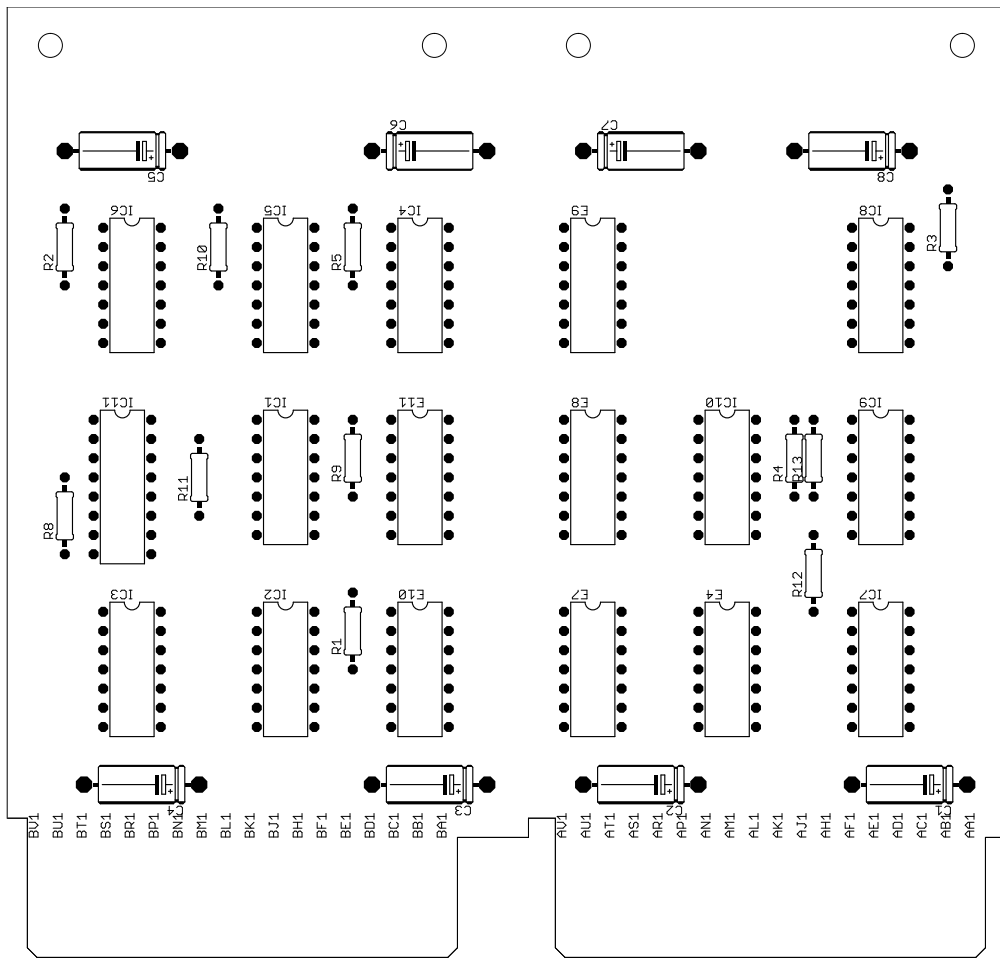
TITLE: M220at

Document Number:

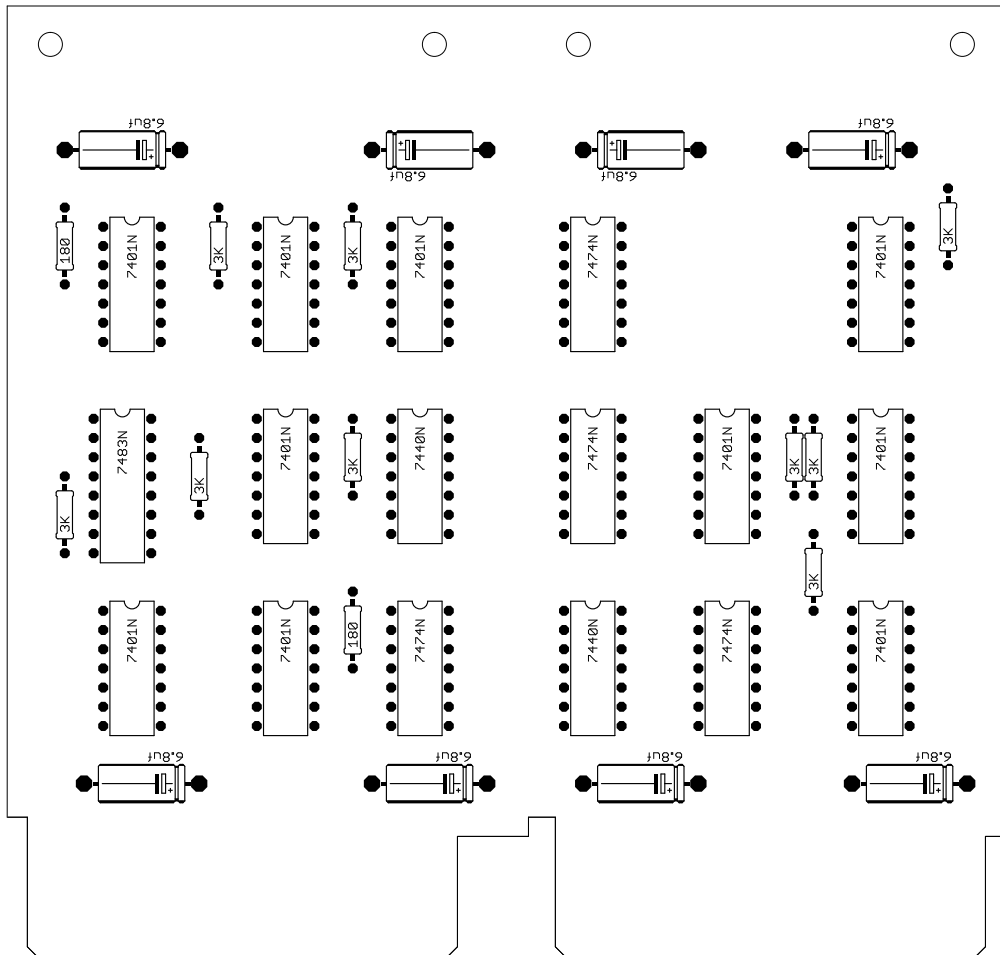
REV:

Date: 2/20/2016 10:26:08 AM

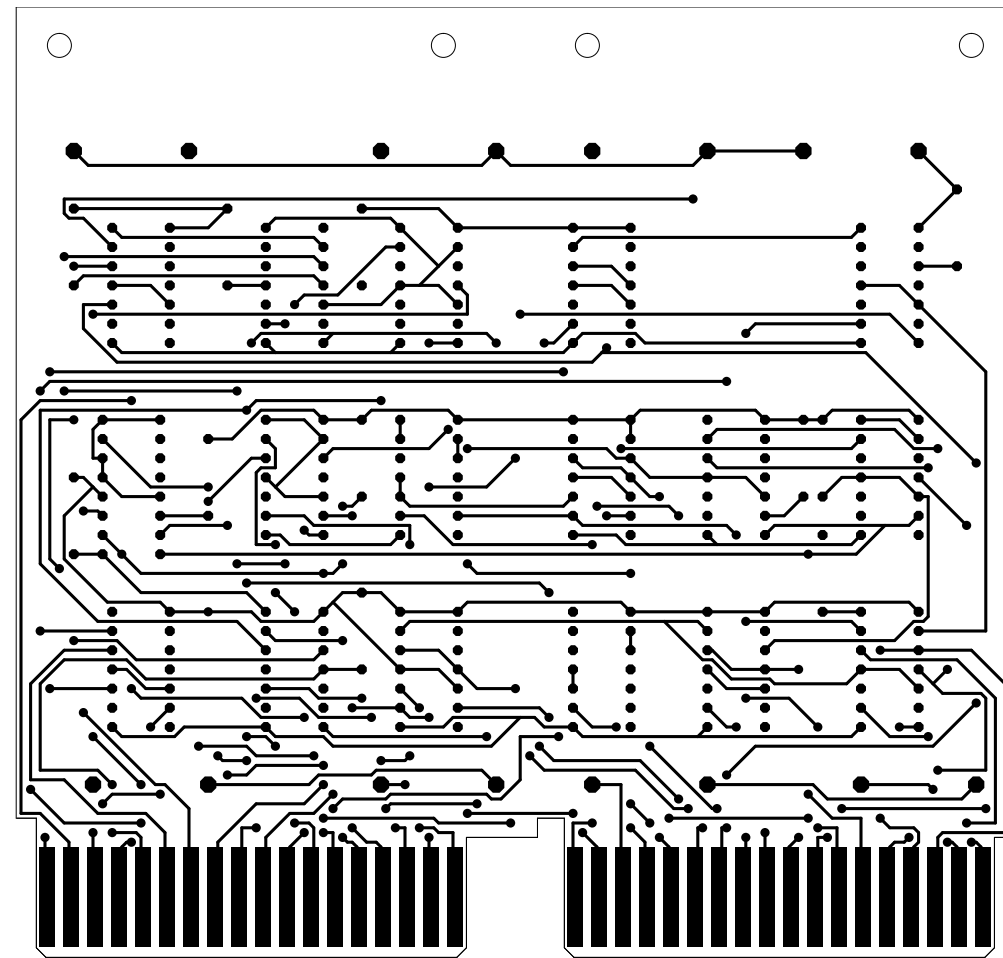
Sheet: 1/1



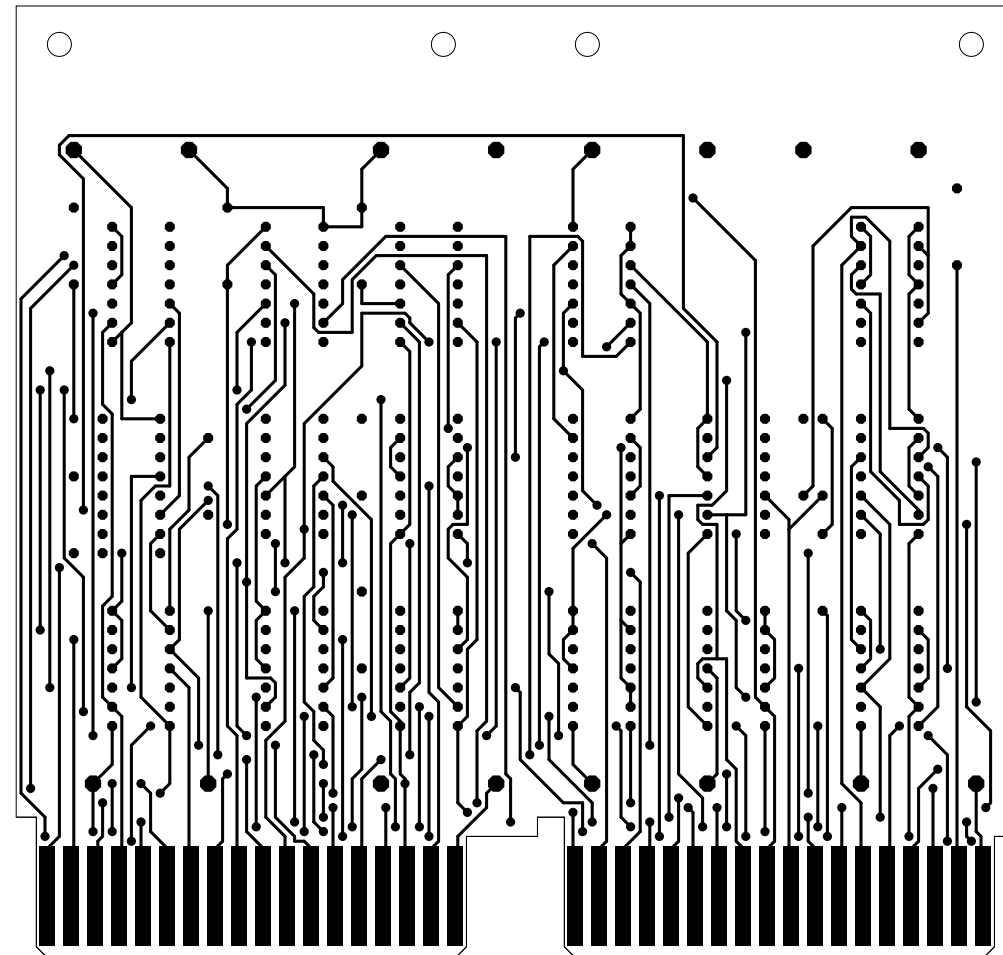
Component Names



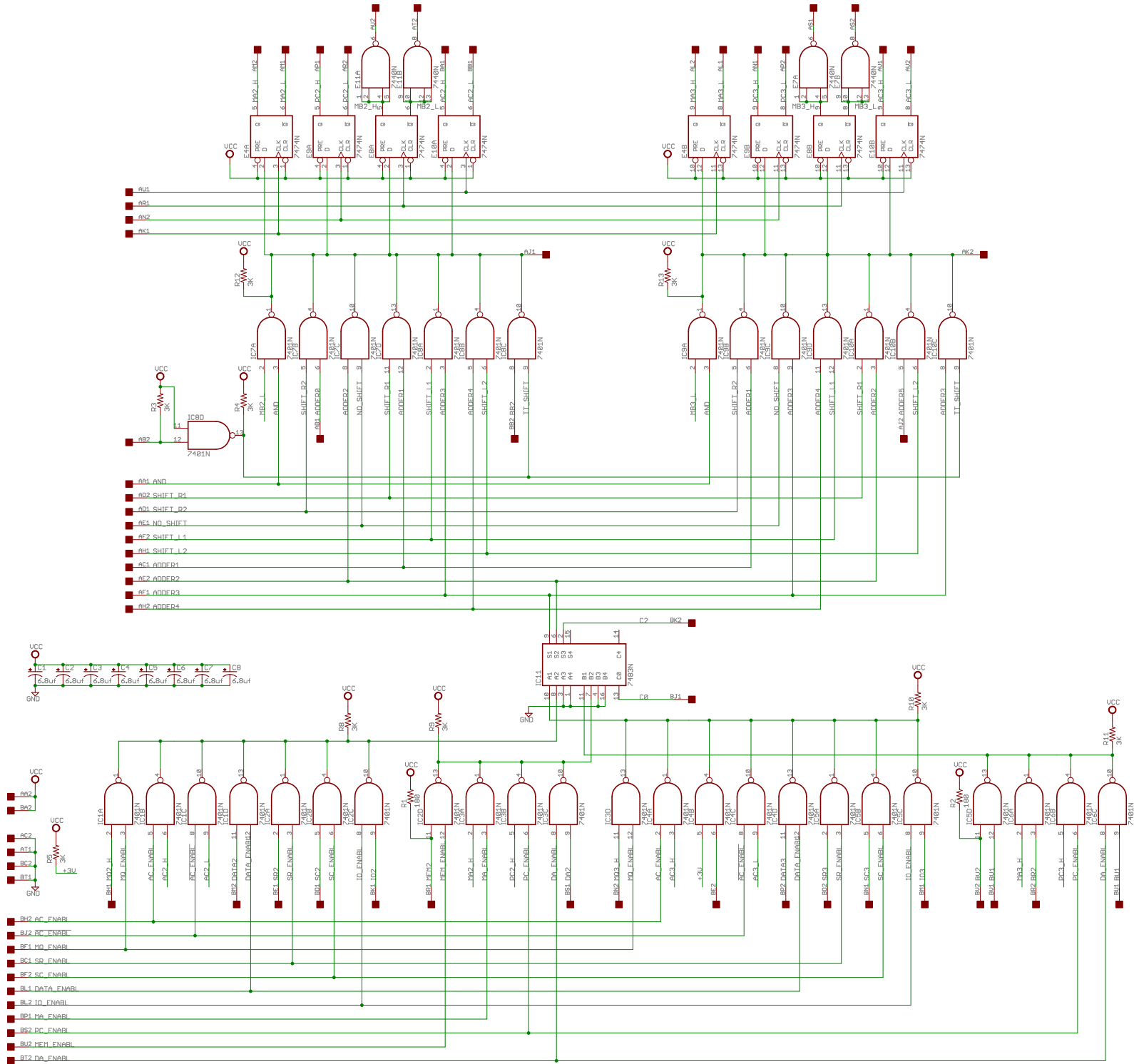
Component Values



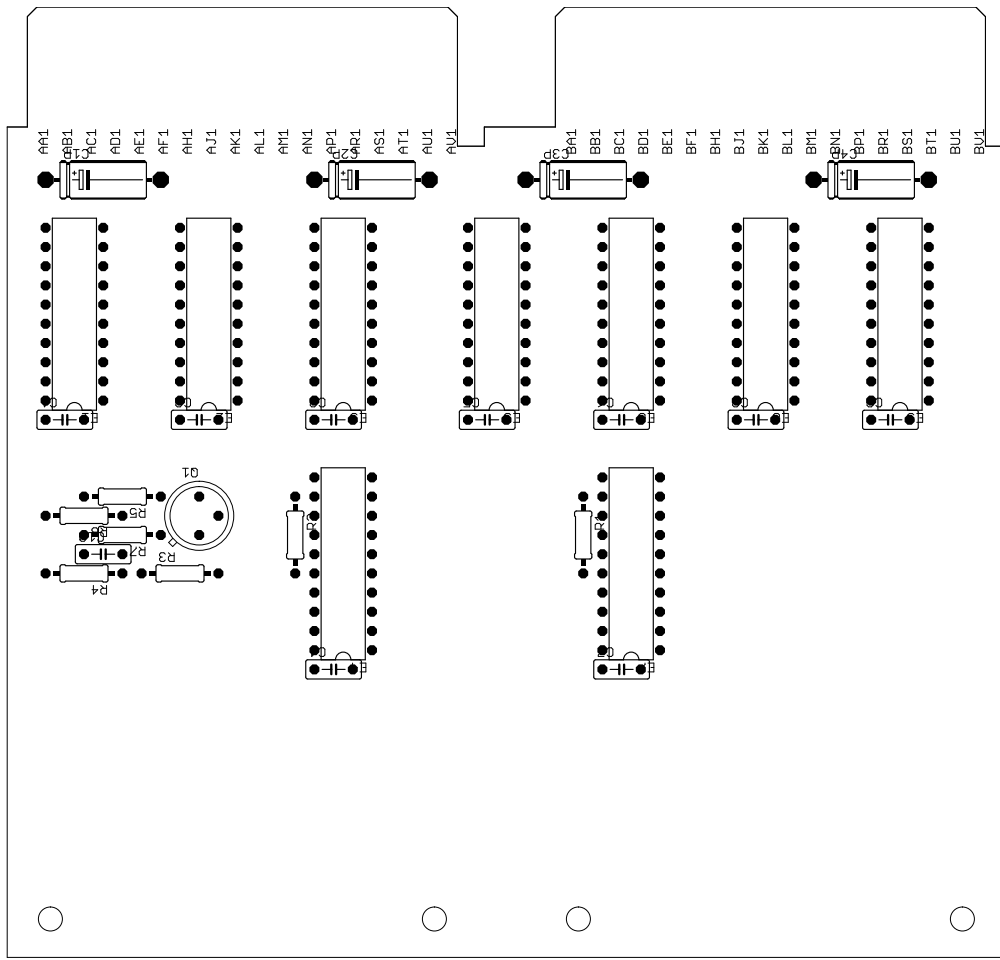
Component Side Etch



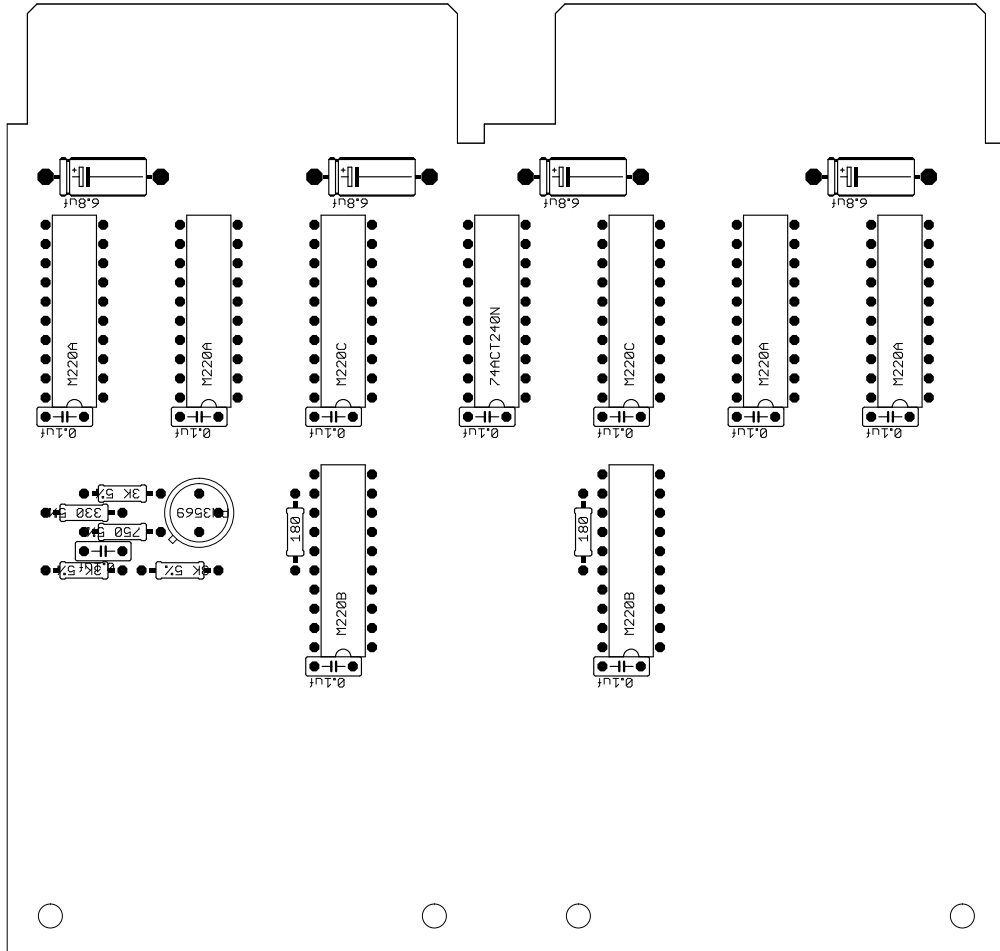
Solder Side Etch



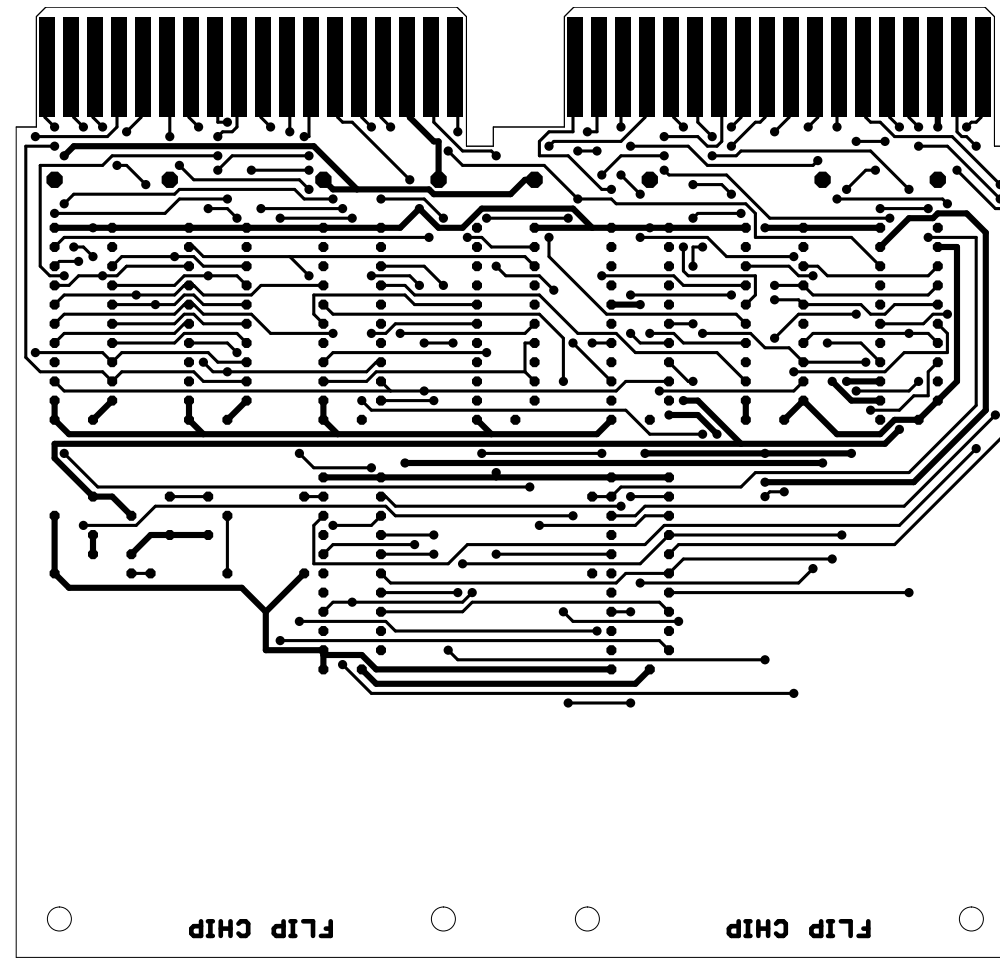
OUTLINE-DOUBLE M228b with ECO applied.



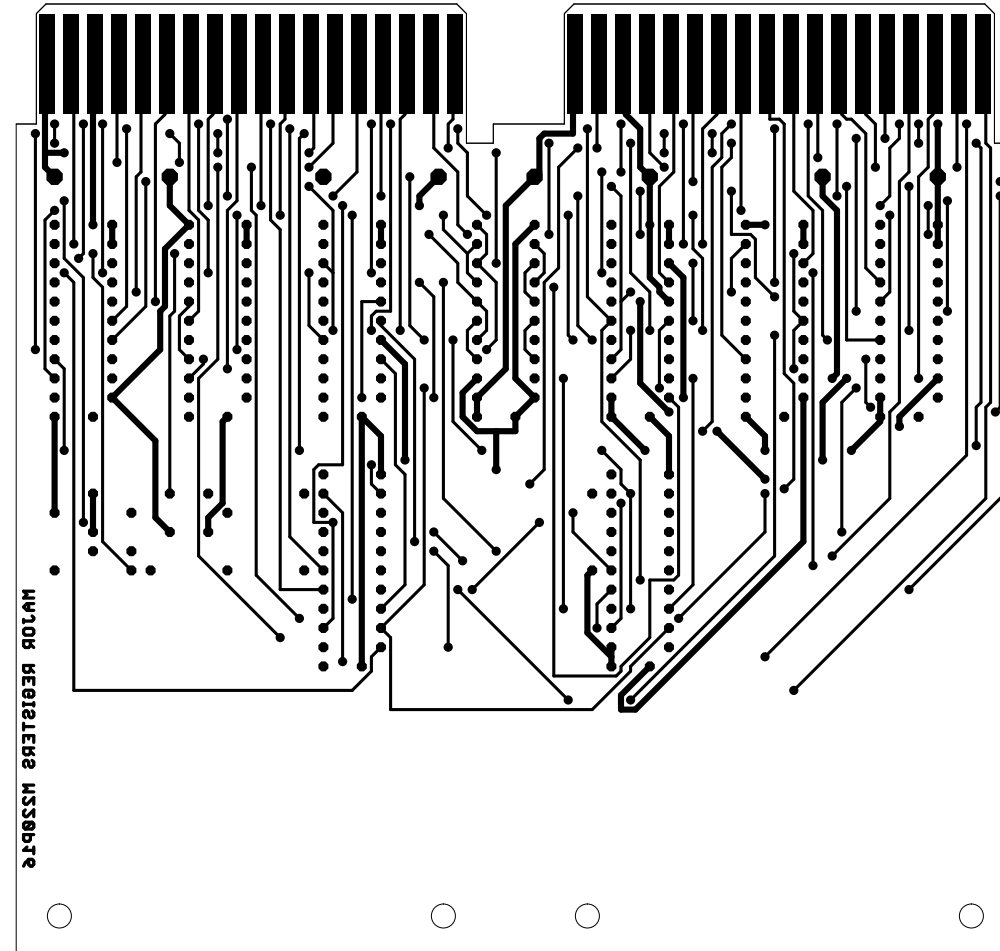
Component Names



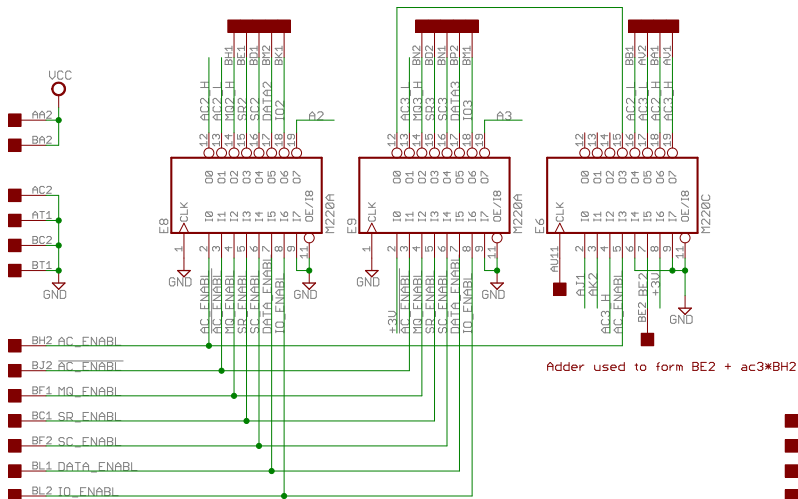
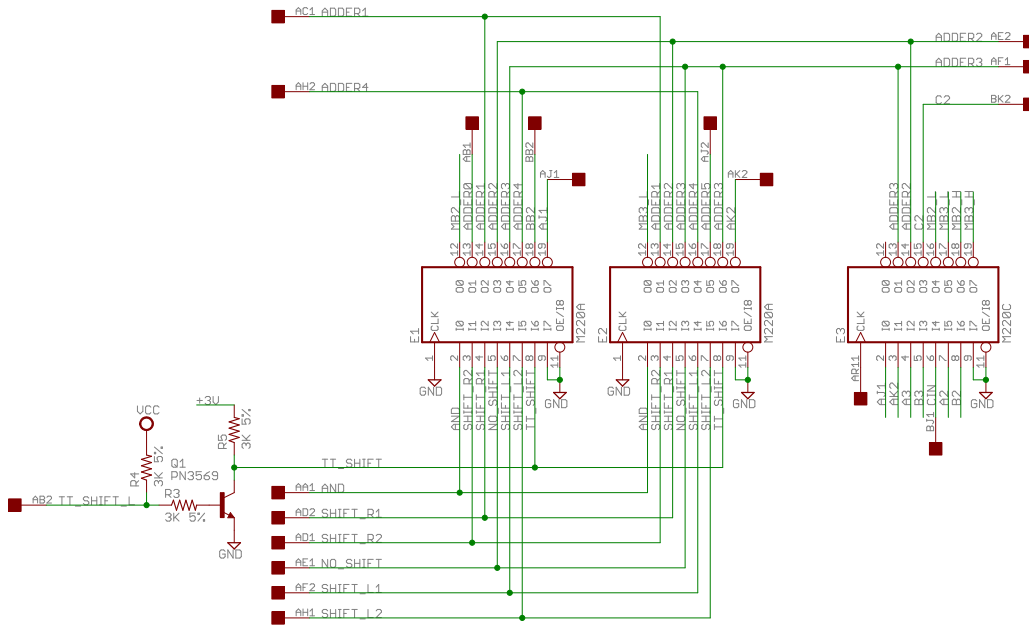
Component Values



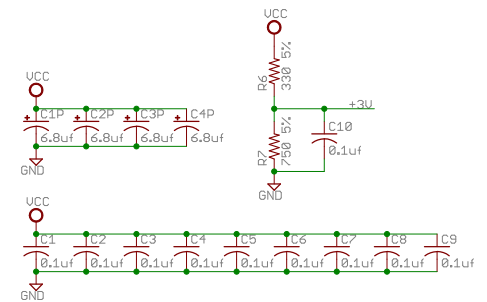
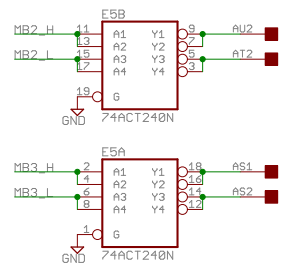
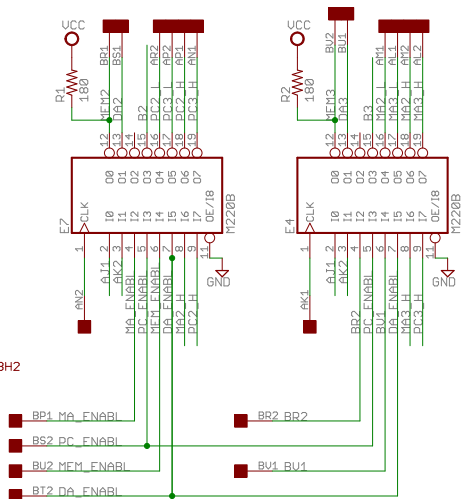
Component Side Etch



Solder Side Etch

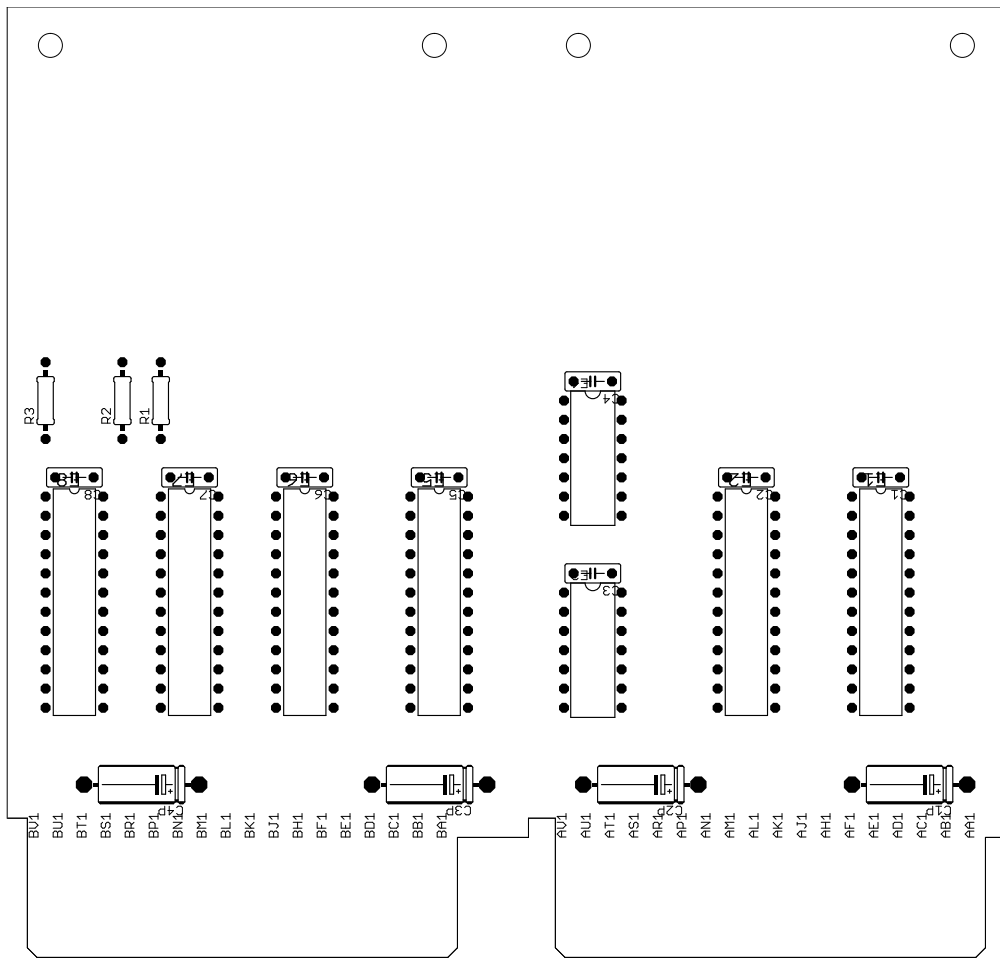


Adder used to form BE2 + ac3*BH2

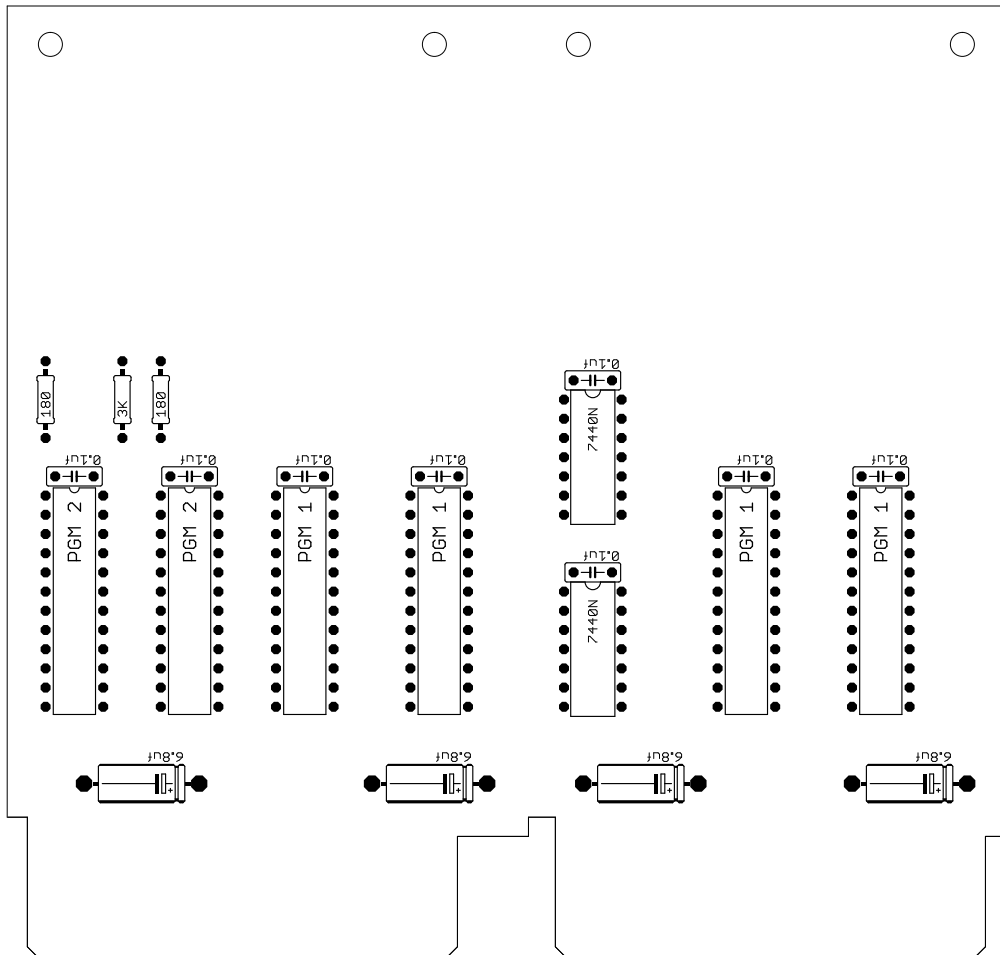


OUTLINE=DOUBLE

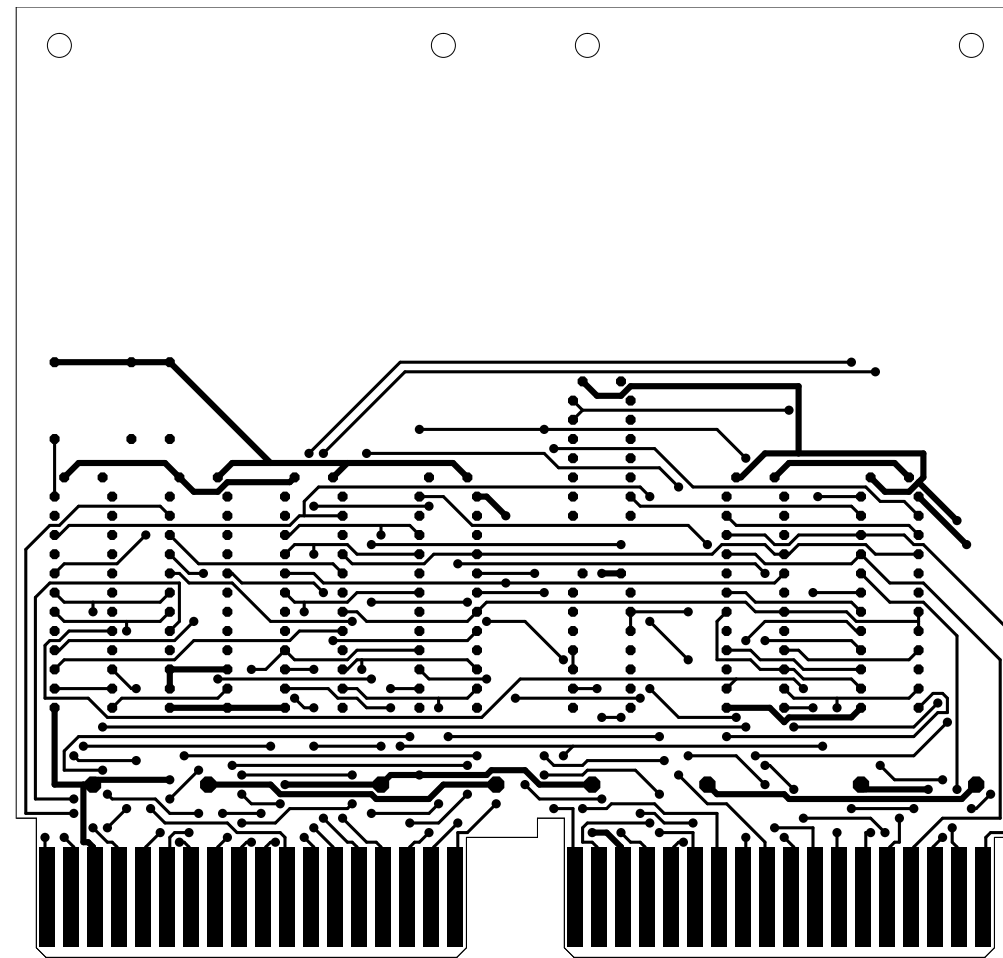
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TITLE: M220p16	
Document Number:	REV:
Date: 2/20/2016 10:26:08 AM	Sheet: 1/1



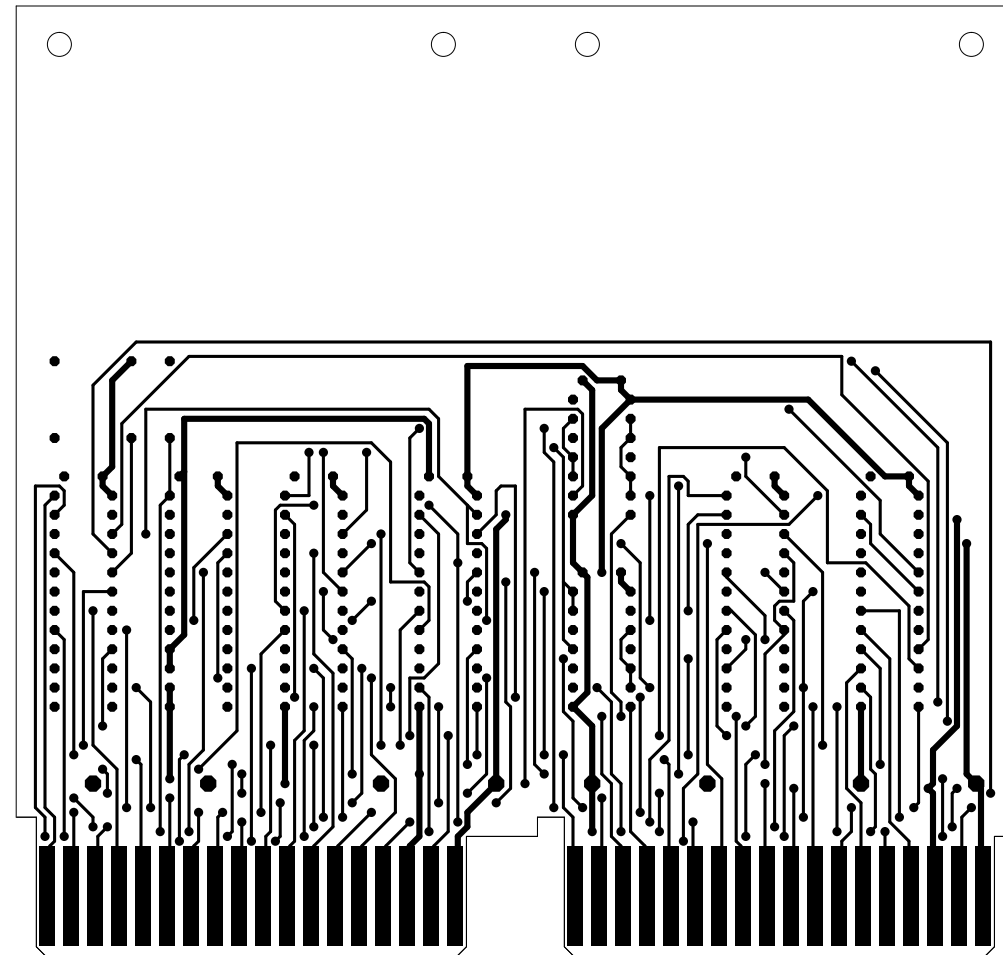
Component Names



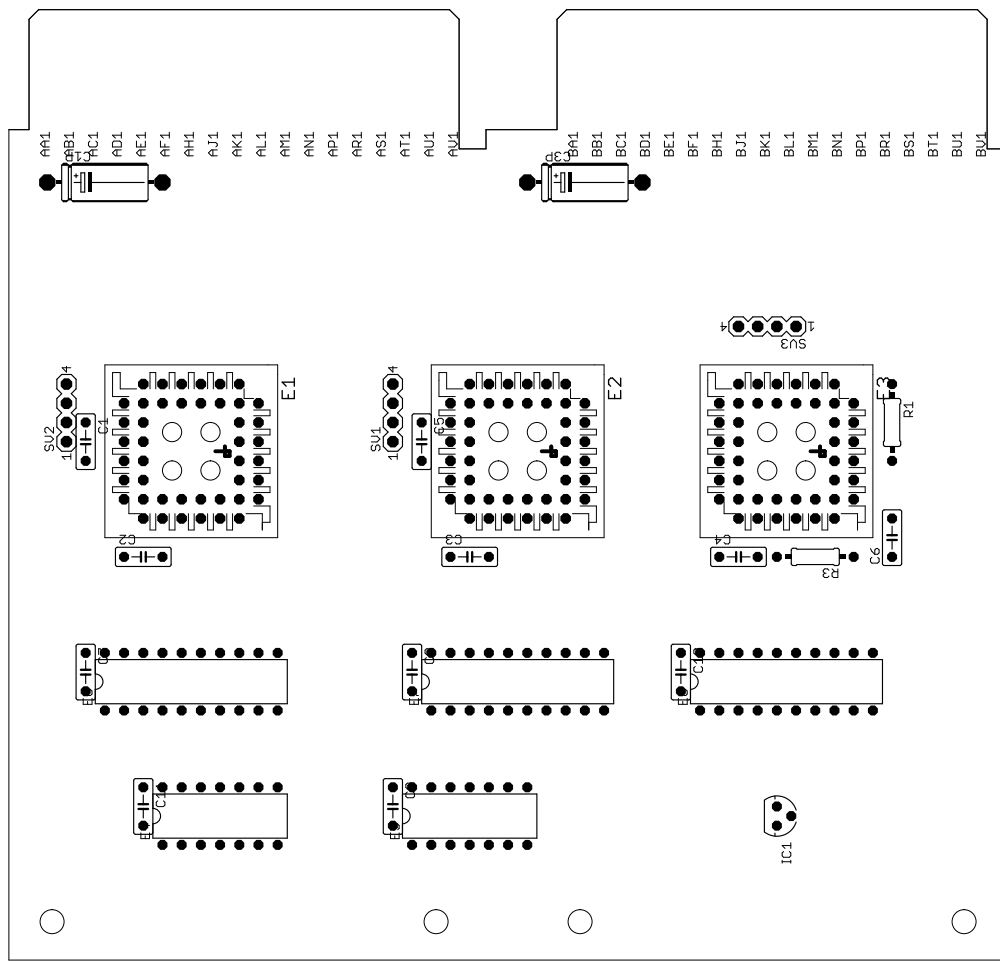
Component Values



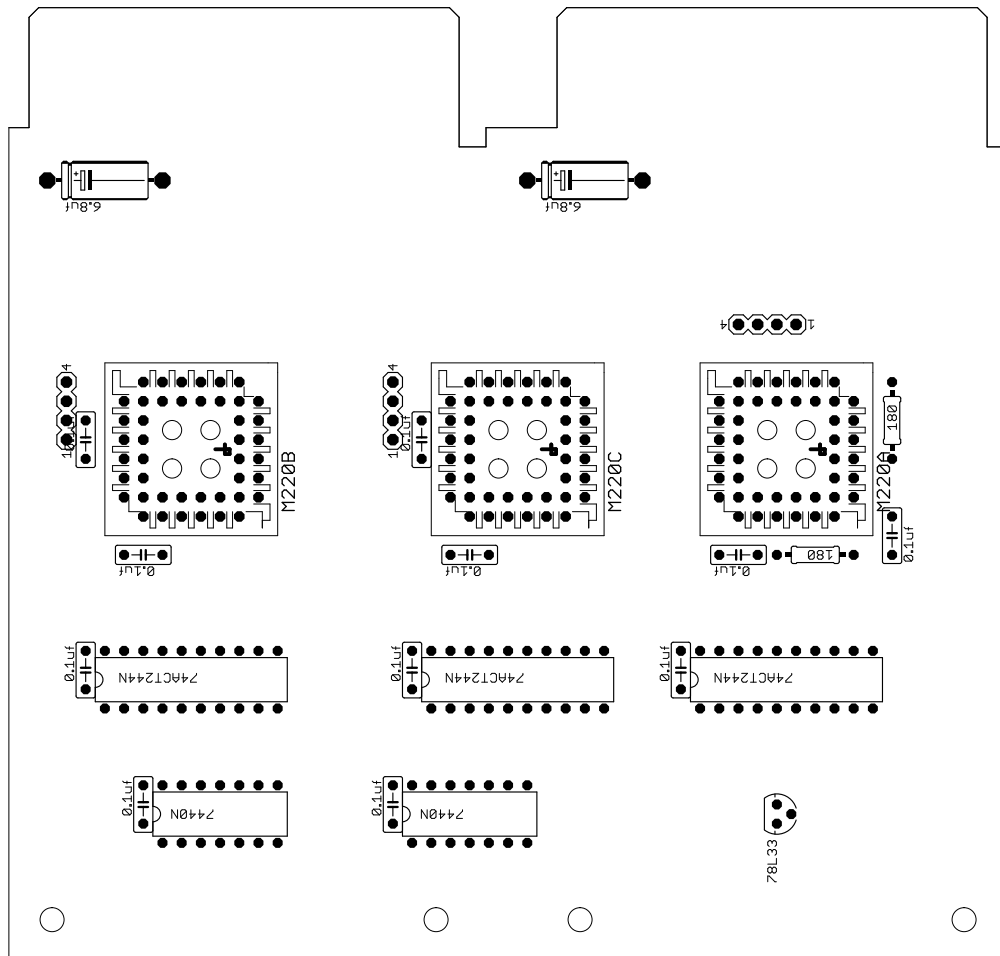
Component Side Etch



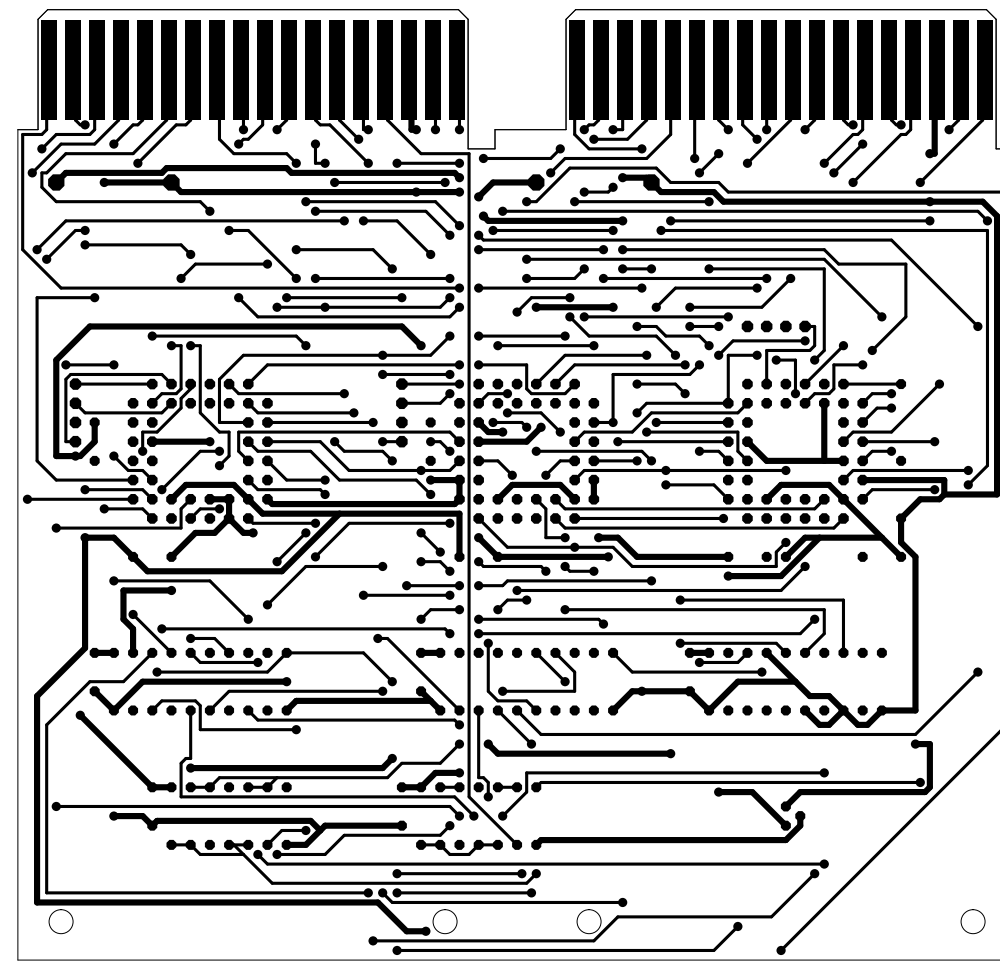
Solder Side Etch



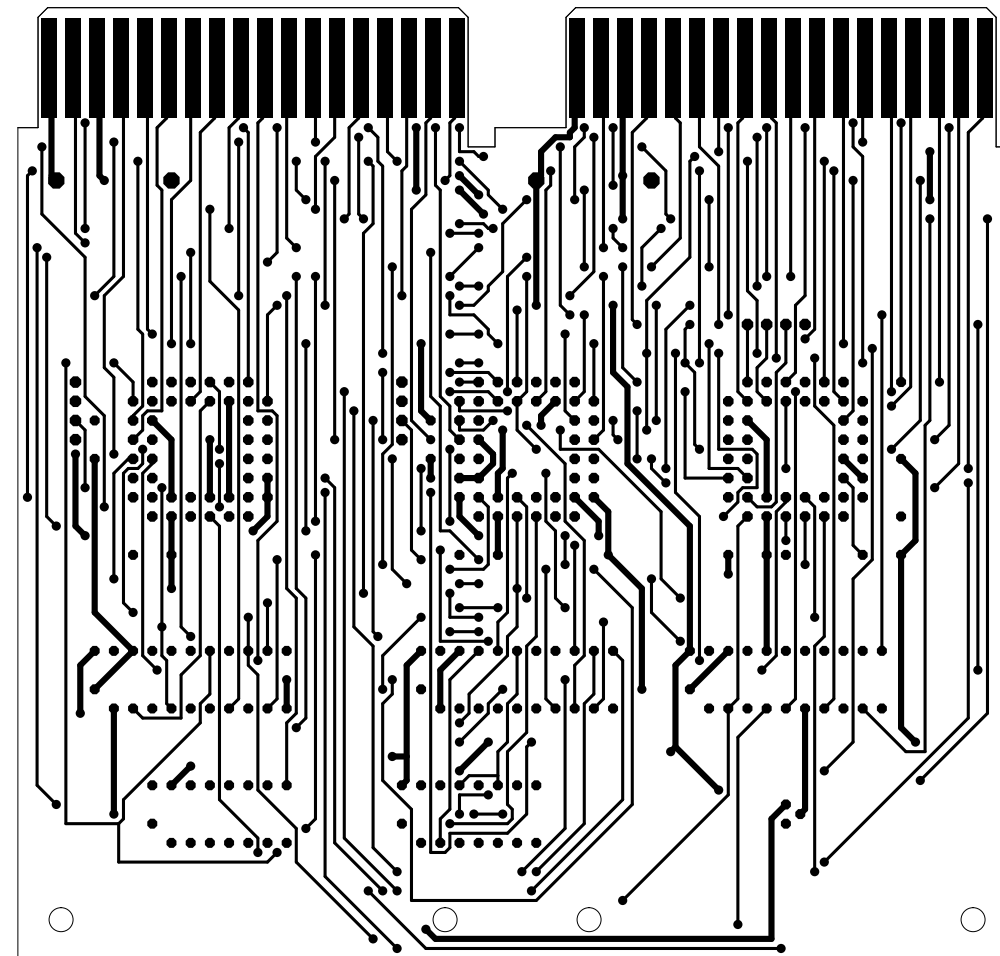
Component Names



Component Values



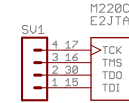
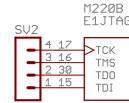
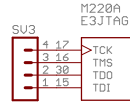
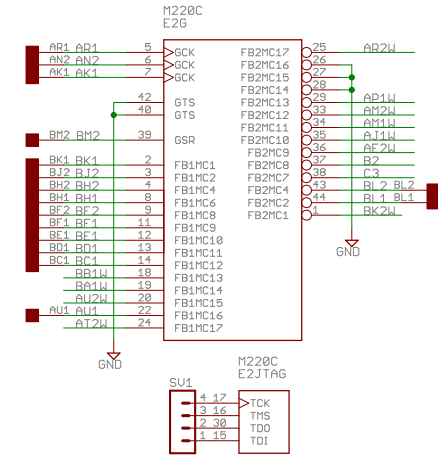
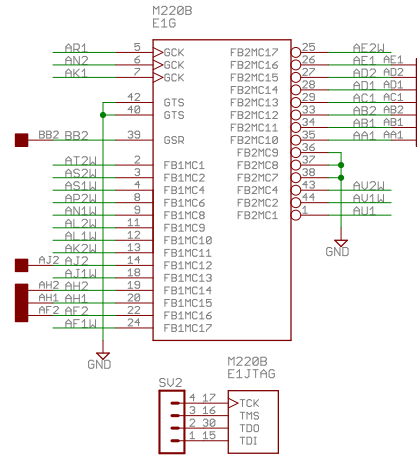
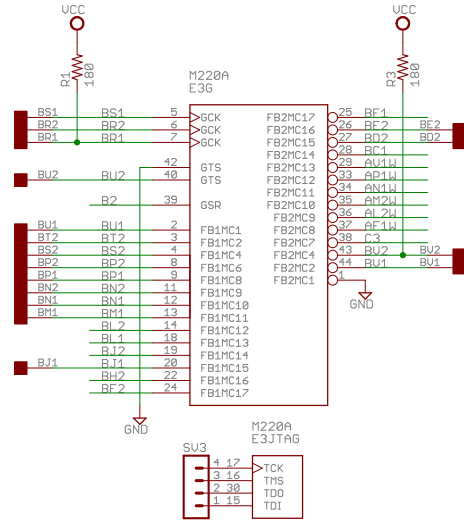
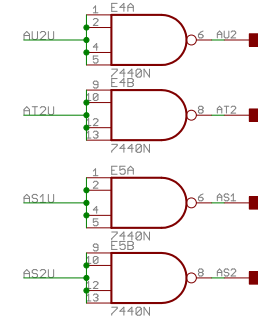
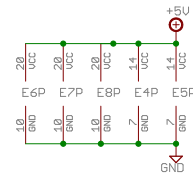
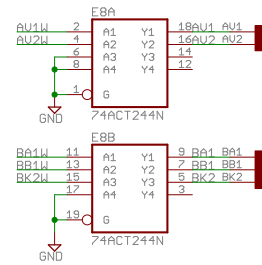
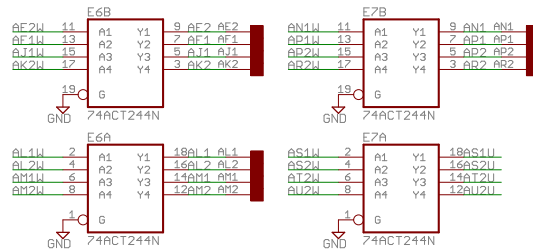
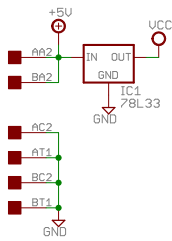
Component Side Etch



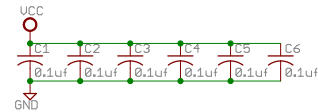
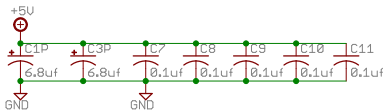
Solder Side Etch

M220 has 21 outputs:

- AE2 AR2
- AF1 AS1
- AJ1 AS2
- AK2 AT2
- AL1 AU2
- AL2 AV1
- AM1 AV2
- AN1 BA1
- AP1 BB1
- AP2 BK2



OUTLINE-DOUBLE



PAL Based Version of M220B

TITLE: M220xc

Document Number:

REV:

Date: 2/25/2016 2:22:55 PM

Sheet: 1/1