

C = I * CLK PERIOD
 ADJUST I FOR P-P DATA
 EQUALING 80% OF ADC SPAN

VALUES SHOWN FOR 10M CLOCK SEE BELOW FOR OTHER RATES	
RATE	CAP
10M	1000pf
25M	470pf
50M	330pf
75M	220pf
100M	150pf
150M	100pf
200M	75pf
300M	50pf
400M	37.5pf
500M	31.3pf
600M	25.8pf
800M	18.8pf
1000M	15.6pf

Use low stability clock during calibration. Once calibrated, the AutoCal feature should be disabled before using a high stability clock. For improved data accuracy the resolution should be reduced in software by 4x to 8x.

ADJUST R13 FOR
 SAME CURRENT THRU
 D7, D8 TO MINIMIZE
 TEMP SENSITIVITY

OPTIONAL DOUBLER
 IF NOT INSTALLED
 JUMPER U10 1-3, 5-7
 WITHOUT DOUBLER DATA
 IS TYPICALLY 2V TO 4V
 WITH A SPAN OF 400
 WITH DOUBLER DATA IS
 TYPICALLY 0.5V TO 4.5V
 WITH A SPAN OF 800

ADJUST GAINS FOR EQUAL SPANS IN BOTH CHANNELS
 ADJUST OFFSETS TO CENTER DATA IN ADC SPAN

Solid State Services	
PICTIC II Interpolator	
Revision Notes	Rev 2.1
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7/01/08 RHM L78L06 6V supply, LM385 1.2V ref, 2N7000 resets
 2/15/10 RHM Add AutoCal to equate channel errors
 2/15/10 RHM Add AutoCal to equate channel errors
 Rev 2.0 LM317L 7.5V Supply, LM385 2.5V ref, 2 interrupts
 6/05/10 RHM Add inverter to TRK1, gain / offset trimmers
 Rev 2.1 Use 7.5V as bias supply, add offset resistors

ID NUMBER	DESCRIPTION	MOUSER P/N	6/2010 Pricing
C16, C17	1000pf 100v 5% COG Capacitor	80-C320C102J1G5CA	\$ 0.20 \$ 0.40
C2, C4, C6, C9, C12, C13, C14, C15, C18, C20, C21, C15, C18,	0.1uf 50v Ceramic Capacitor	80-C320C104K5R5CA	\$ 0.14 \$ 1.54
C22, C23, C24, C25, C26	1uf 25v Tantalum Capacitor	80-T350A105K025AT	\$ 0.41 \$ 2.05
C1, C3, C5, C7, C8, C10, C11, C19	10uf 16v Tantalum Capacitor	80-T350E106K016AT	\$ 0.48 \$ 3.84
D1, D2, D3, D4, D5, D6, D7, D8, D9, D10	IN4448 Small Signal Diode	512-IN4448	\$ 0.02 \$ 0.20
J1, J3, J4, J5	1x2 0.1" Header P/D 36P	649-68000-236HLF	\$ 0.53 \$ 0.53
Q1, Q2	1x3 0.1" Header P/D 36P		
Q3, Q4	1x4 0.1" Header P/D 36P		
R1	2N3906 PNP Transistor	512-2N3906BU	\$ 0.08 \$ 0.16
R2	2N7000 N-CH FET	512-2N3904BU	\$ 0.10 \$ 0.10
R3, R4, R11, R12, R14, R15, R25	1.2K 1/4W 1% Resistor	512-2N7000	\$ 0.22 \$ 0.22
R5, R6	240 1/4W 1% Resistor	271-1.2K-RC	\$ 0.13 \$ 0.13
R7, R9	10K 1/4W 1% Resistor	271-10K-RC	\$ 0.13 \$ 0.13
R8, R10	1K 1/4W 1% Resistor	271-1K-RC	\$ 0.13 \$ 0.26
R13	150 1/4W 1% Resistor	271-150-RC	\$ 0.13 \$ 0.26
R16, R23	200 1/4W 10% Cermet Trimmer	652-3266W-1-201LF	\$ 2.94 \$ 5.88
R17, R22	620 1/4W 1% Resistor	271-620-RC	\$ 0.13 \$ 0.13
R18, R19, R20, R21, R24, R26	2.4K 1/4W 1% Resistor	271-2.4K-RC	\$ 0.13 \$ 0.26
R25	5K 1/4W 10% Cermet Trimmer	652-3266W-1-502LF	\$ 2.94 \$ 5.88
U1	100K 1/4W 1% Resistor	271-100K-RC	\$ 0.13 \$ 0.52
U2	2.2K 1/4W 5% Resistor	291-2.2K-RC	\$ 0.10 \$ 0.20
U3	10K 1/4W 5% Resistor	291-10K-RC	\$ 0.10 \$ 0.10
U4	L78L05 +5V 100ma Regulator	511-L78L05ACZ	\$ 0.45 \$ 0.45
U5	10 MHz 30PPM XO	815-ACH-10-EK	\$ 1.60 \$ 1.60
U6	LM317L Adj 100ma Regulator	512-LM317LZX	\$ 0.22 \$ 0.22
U7	74AC74 Dual D F/F	512-74AC74PC	\$ 0.86 \$ 0.86
U8	2.5V 20PPM Voltage Reference	595-LM385BLP-2-5	\$ 0.72 \$ 0.72
U9	74AC175 Quad D F/F	512-74AC175PC	\$ 0.97 \$ 0.97
U10	74AC163 4-bit Bin Counter	595-74AC163E	\$ 0.70 \$ 0.70
U11	TS274A Quad CMOS Op-Amp	511-TS274AIN	\$ 2.58 \$ 2.58
	16F688 Microcontroller	579-PIC16F688-I/P	\$ 1.66 \$ 1.66
	TS272A Dual CMOS Op-Amp	511-TS272ACN	\$ 1.45 \$ 1.45
	MAX232 TTL to RS232 Converter	595-MAX232N	\$ 1.09 \$ 1.09
		Total	\$36.00

Solid State Services

Materials List

Richard H. McCorkle

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SOLID STATE
SERVICES
PICTIC II

GAIN ADJ

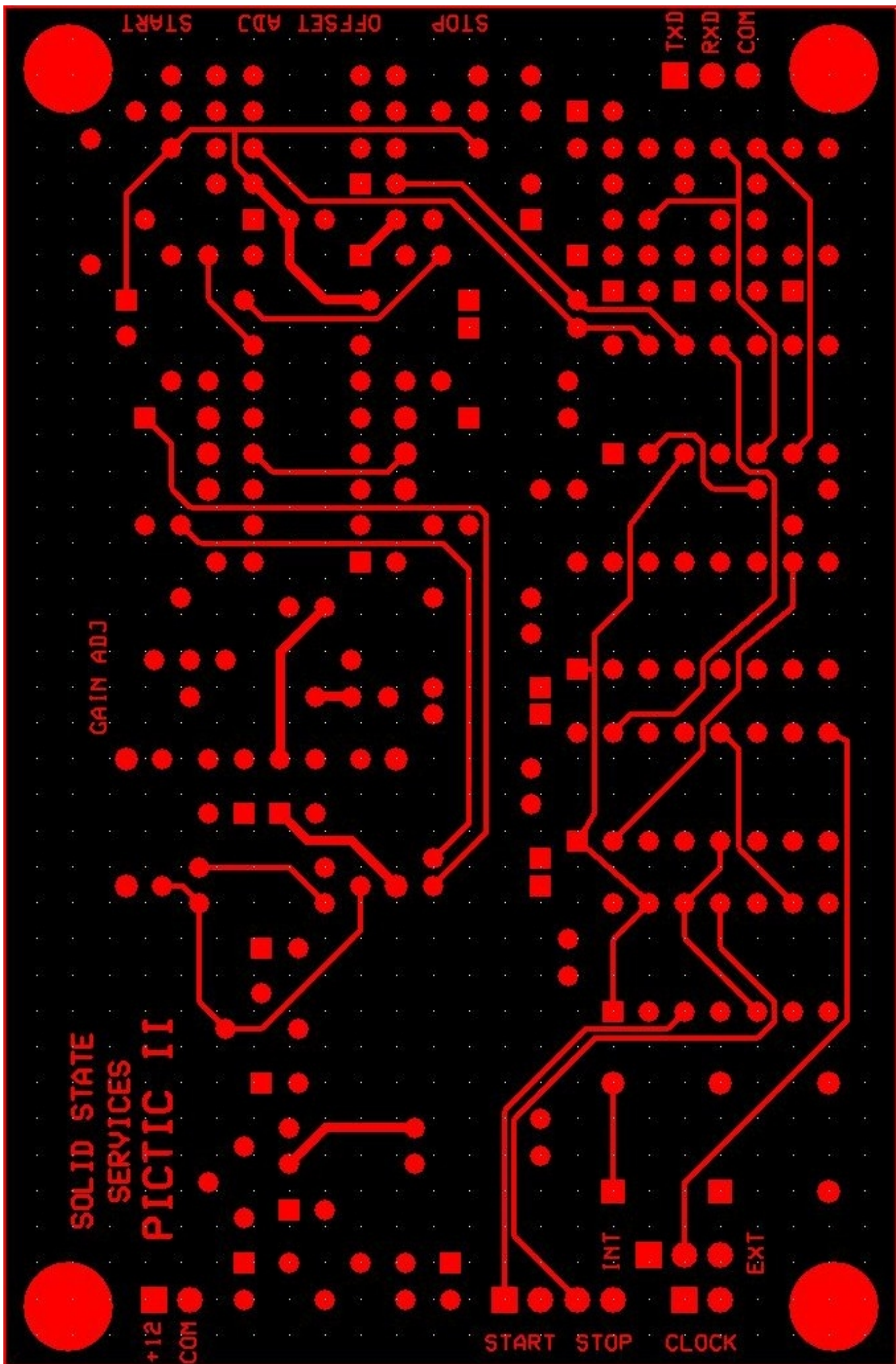
STOP OFFSET ADJ START

TXD
RXD
COM

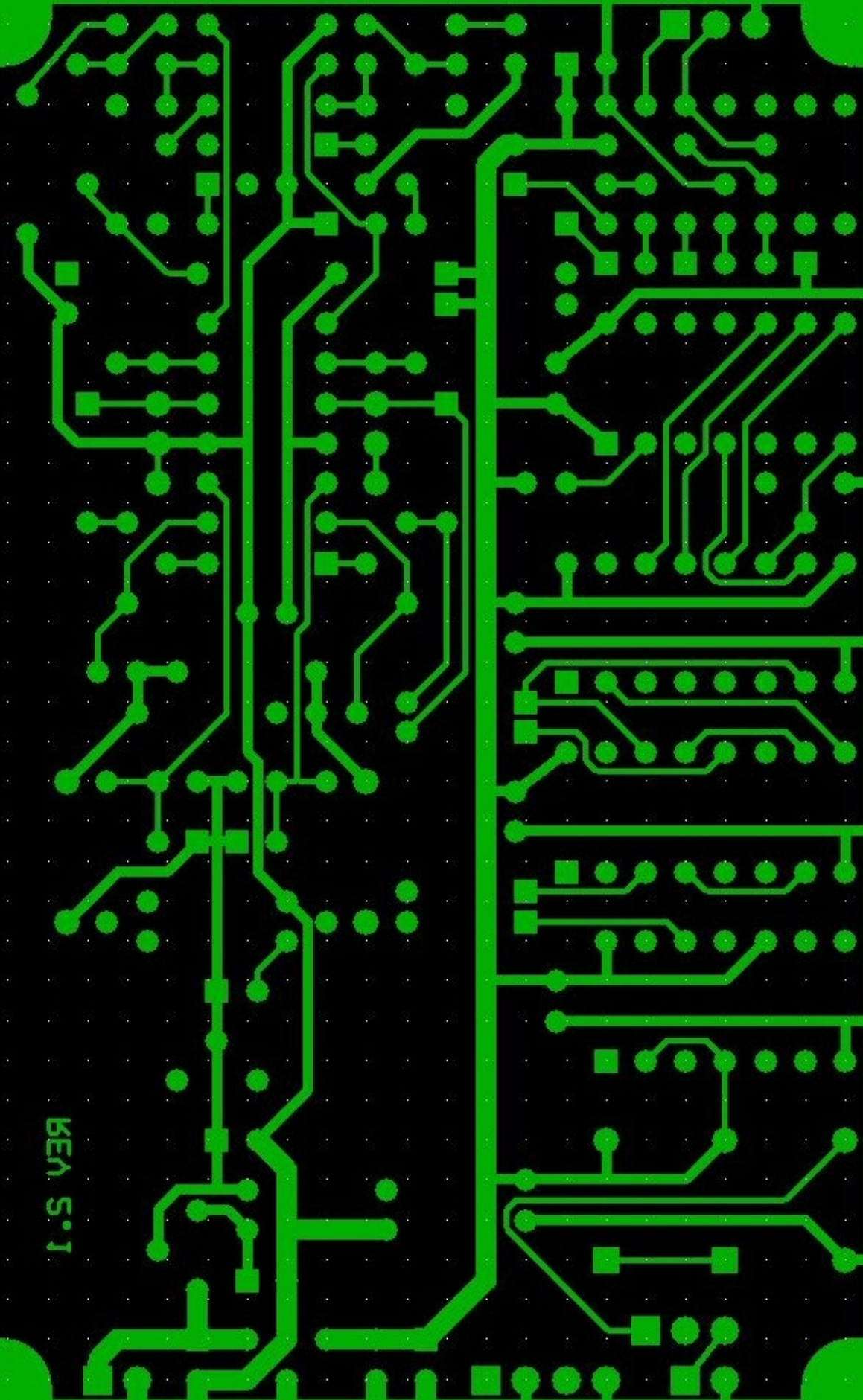
+12
COM

START STOP CLOCK

INT
EXT



REV. S. 1



SOLID STATE SERVICES PICTIC II

