

# PROOF OF CONCEPT V1

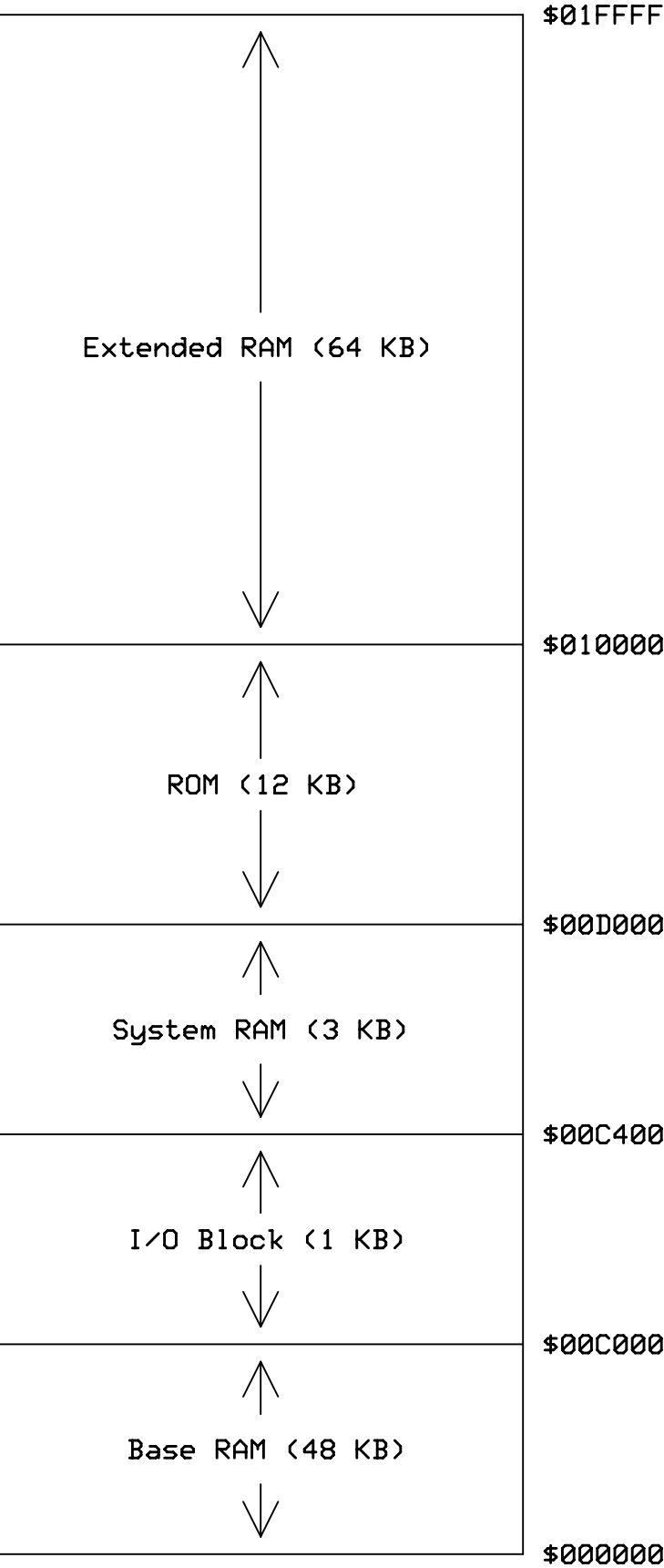
# SINGLE-BOARD COMPUTER

---

128 Kilobyte Static RAM System

Powered by the W65C816S Microprocessor

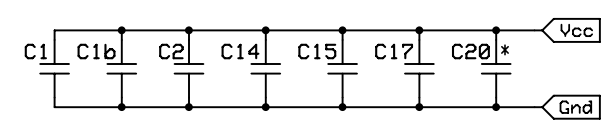
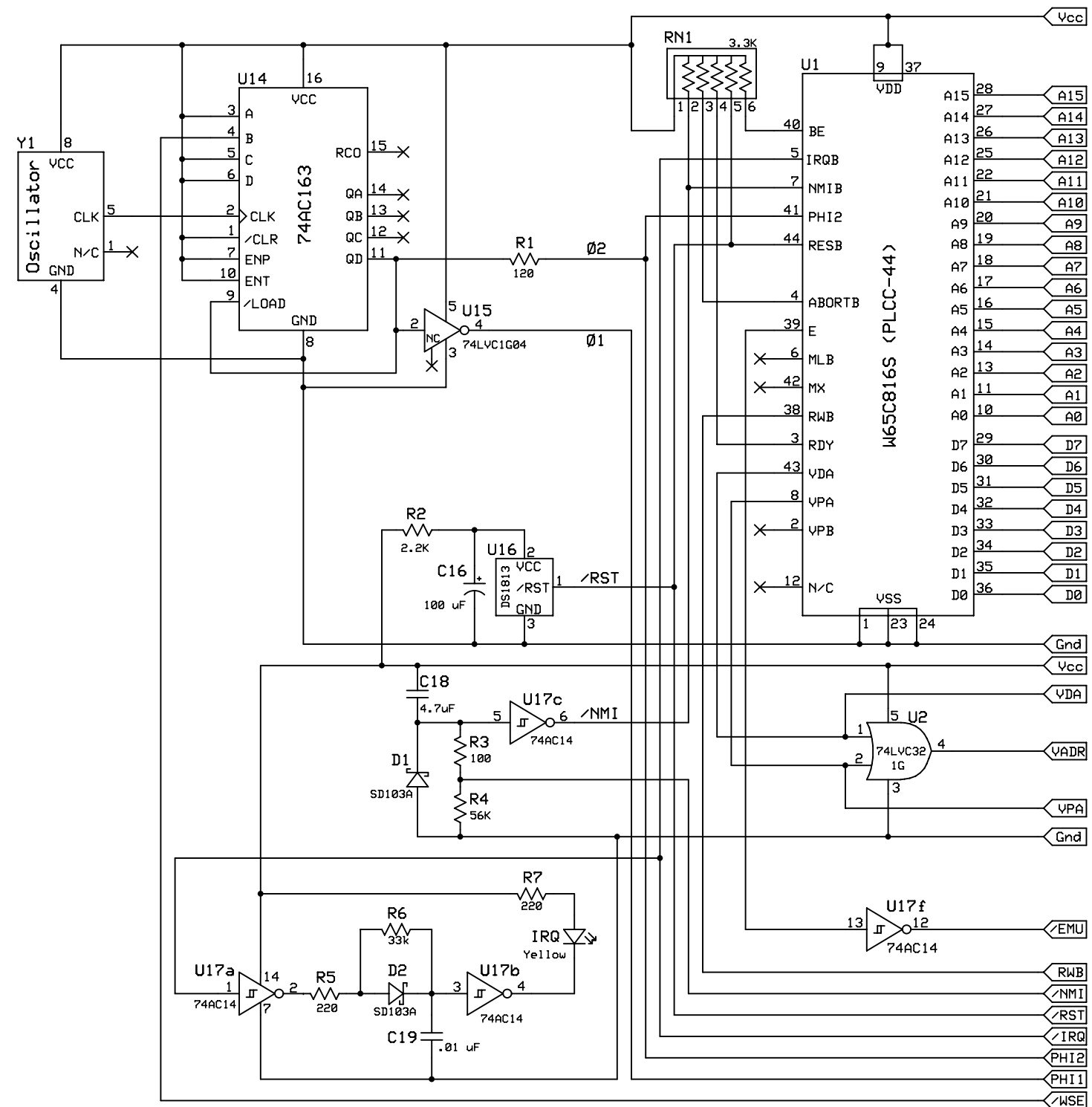
Designed by BigDumbDinosaur



										POC V1.4 MEMORY MAP											
	0 1 0 0 0 0	0 0 8 0 0 0	0 0 4 0 0 0	0 0 2 0 0 0	0 0 1 0 0 0	0 0 0 8 0 0	0 0 0 4 0 0	0 0 0 2 0 0	0 0 0 1 0 0	0 0 0 0 0 0	0 0 0 0 8 0	0 0 0 0 4 0	0 0 0 0 0 2	0 0 0 0 0 1	0 0 0 0 0 8	0 0 0 0 0 4	0 0 0 0 0 2	0 0 0 0 0 1			SIZE
ADDRESS	A16	A15	A14	A13	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0	SYMBOL	ASSIGNMENT	KB	
\$000000 \$00BFFF	0 0	0 1	0 0	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	BASRAM	Base RAM Start Base RAM End	48.00	
\$00C000 \$00C3FF	0 0	1 1	1 1	0 0	0 0	0 0	0 0	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	IOBLK <1>	I/O Start I/O End	1.00	
\$00C400 \$00CFFF	0 0	1 1	1 1	0 0	0 0	0 1	1 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	SYSRAM	System RAM Start System RAM End	3.00	
\$00D000 \$00FFFF	0 0	1 1	1 1	0 1	1 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	ROM	ROM Start ROM End	12.00	
\$010000 \$01FFFF	1 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	EXRAM	Extended RAM Start Extended RAM End	64.00	

1) 128 bytes assigned per I/O slot. \$00C380-00C3FF unused.

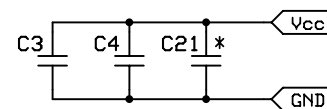
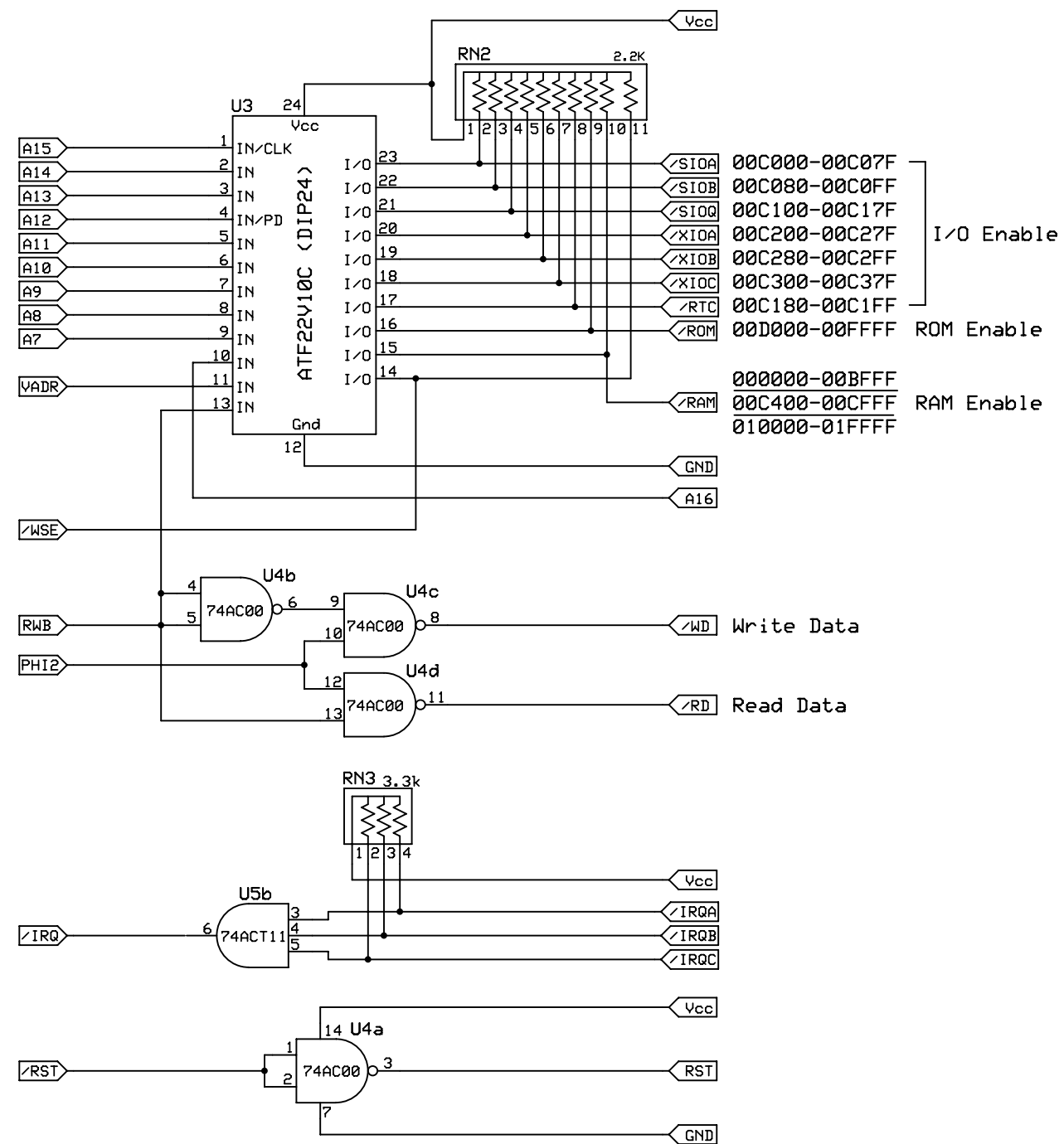
I/O BLOCK DECODING										
	8	4	2	1	0	0	0	0		
	0	0	0	0	8	4	2	1		
	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0		
ADDRESS	A15	A14	A13	A12	A11	A10	A9	A8	ASSIGNMENT	SYM
\$00C000	1	1	0	0	0	0	0	0	DUART #1 (chans A-B, timer A)	SIOA
\$00C080	1	1	0	0	0	0	0	1	DUART #2 (chans C-D, timer B)	SIOB
\$00C100	1	1	0	0	0	0	1	0	uQUART Channel IRQ Status	SIOQ
\$00C180	1	1	0	0	0	0	1	1	Real-Time Clock & NVRAM	RTC
\$00C200	1	1	0	0	0	1	0	0	Expansion Select A	XIOA
\$00C280	1	1	0	0	0	1	0	1	Expansion Select B	XIOB
\$00C300	1	1	0	0	0	1	1	0	Expansion Select C	XIOC



Decoupling Capacitors -- 0.1 uf @ 50v  
 \*C20 → Y1

# MPU INTERFACE

BCS Technology Limited		
W65C816S SINGLE BOARD COMPUTER		
BigDumbDinosaur	2022/08/04	Page 4 of 10
	Rev 1.4	



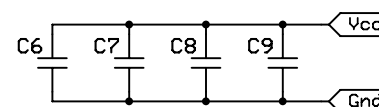
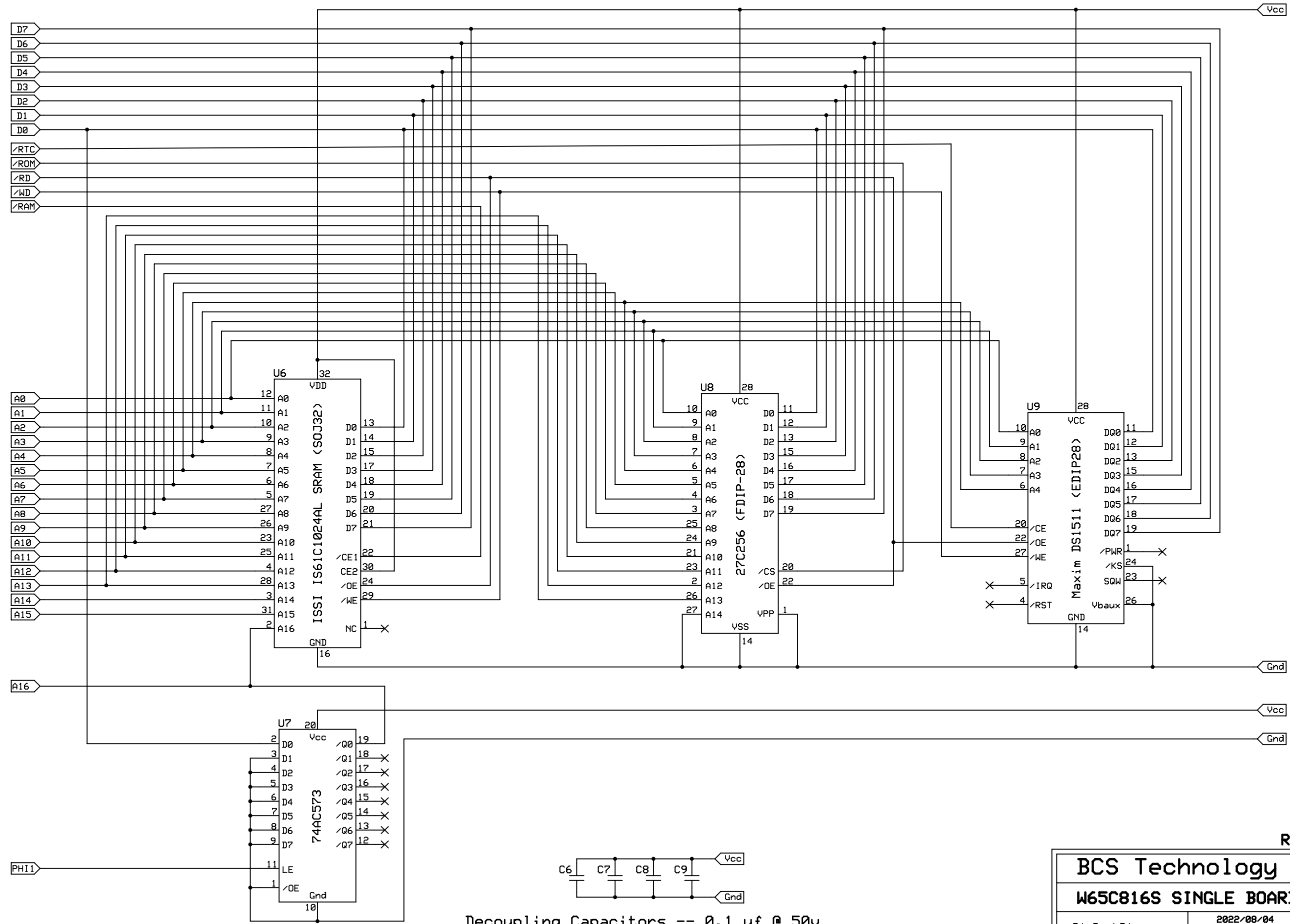
Decoupling Capacitors -- 0.1 uf @ 50v  
\*C21 → RN3

Use TE Connectivity 1-2199298-8 socket with U3.

GLUE LOGIC

BCS Technology Limited  
W65C816S SINGLE BOARD COMPUTER

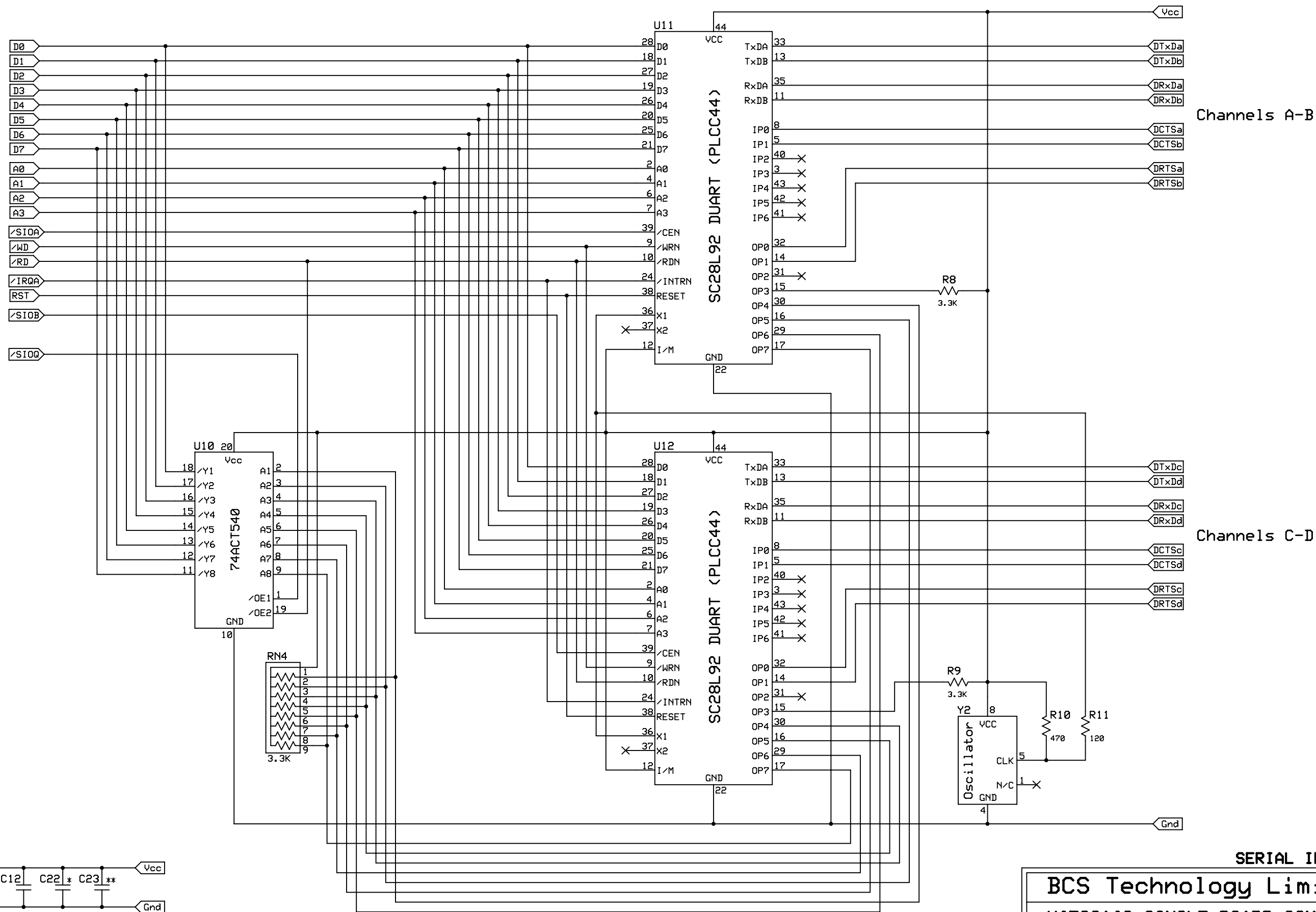
BigDumbDinosaur	2022/08/04	Page 5 of 10
	Rev 1.4	



Decoupling Capacitors -- 0.1 uf @ 50v

RAM, ROM & RTC

BCS Technology Limited		
W65C816S SINGLE BOARD COMPUTER		
BigDumbDinosaur	2022/08/04	Page 6 of 10
	Rev 1.4	



Channels A-B

Channels C-D

SERIAL INTERFACE

BCS Technology Limited

W65C816S SINGLE BOARD COMPUTER

BigDumbDinosaur

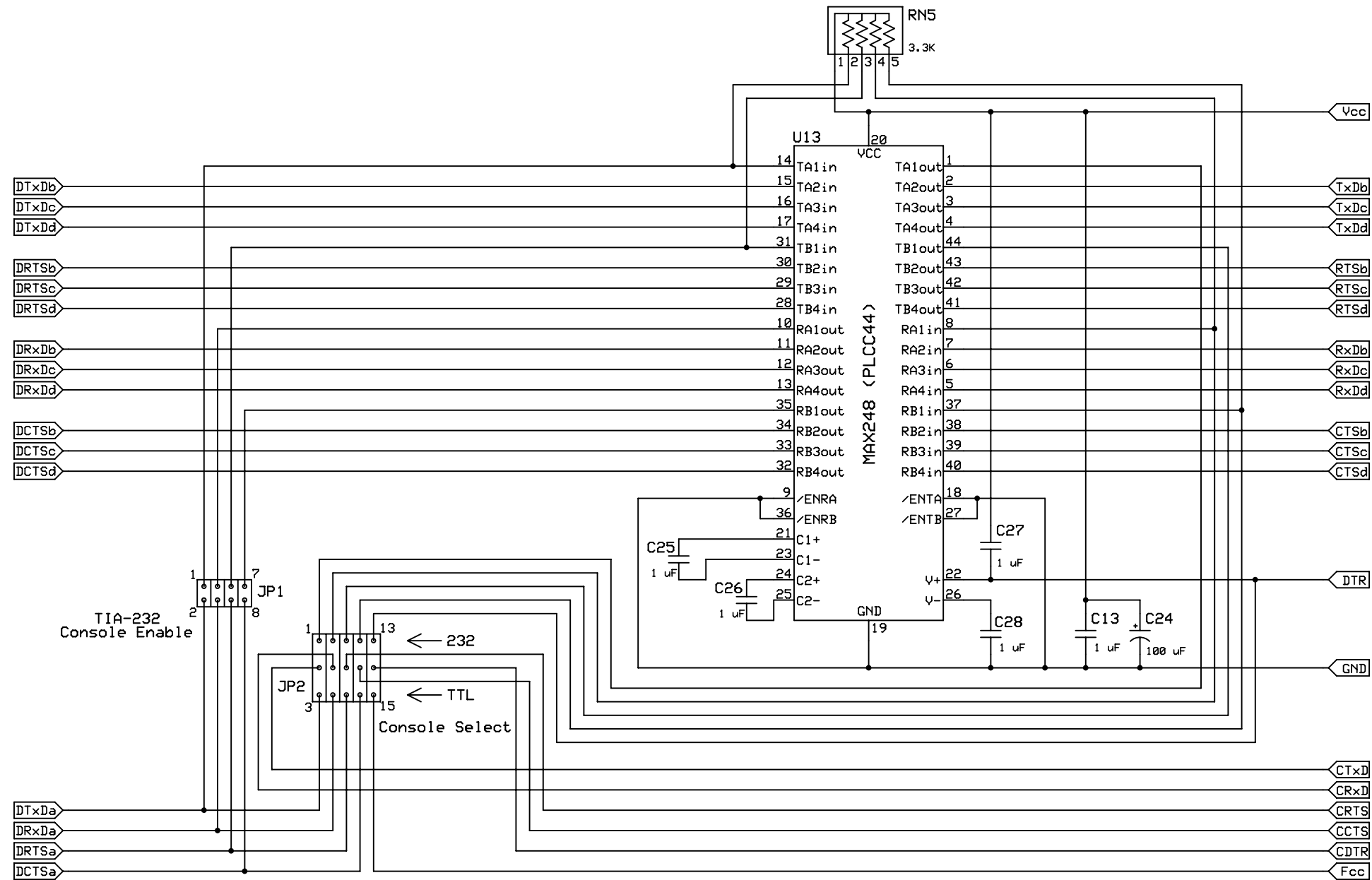
2022/08/04  
Rev 1.4

Page 7 of 10

Decoupling Capacitors -- 0.1 uf @ 50v

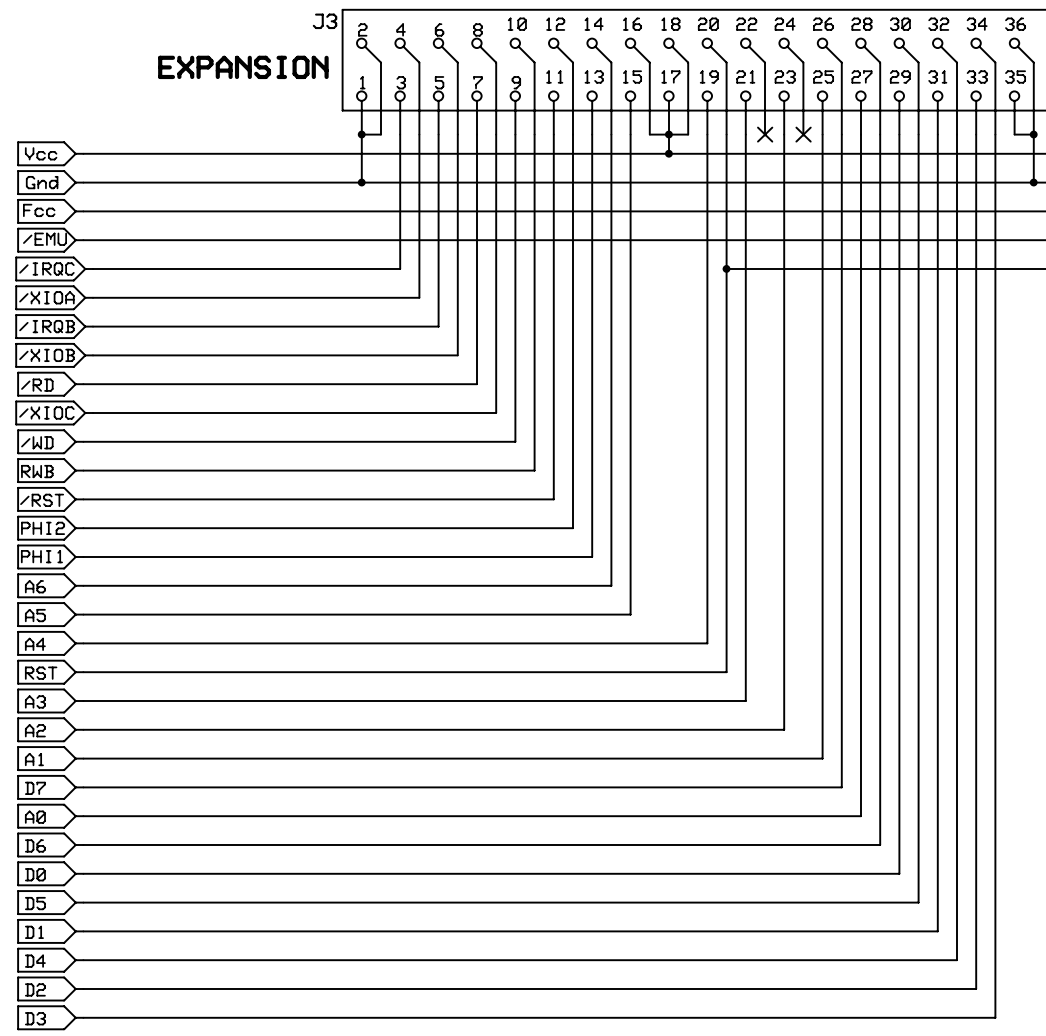
\*C22 → RN4 \*\*C23 → Y2



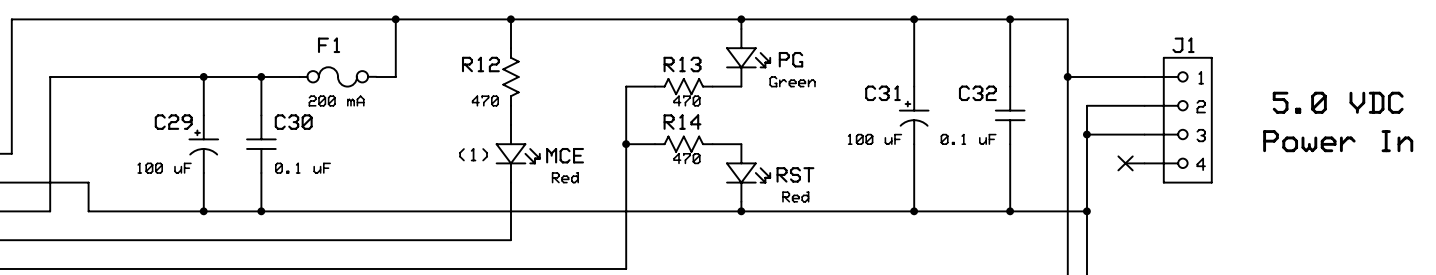


TIA232 INPUT/OUTPUT

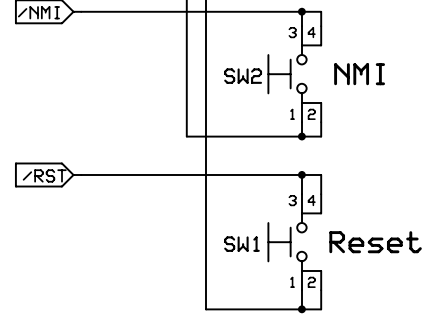
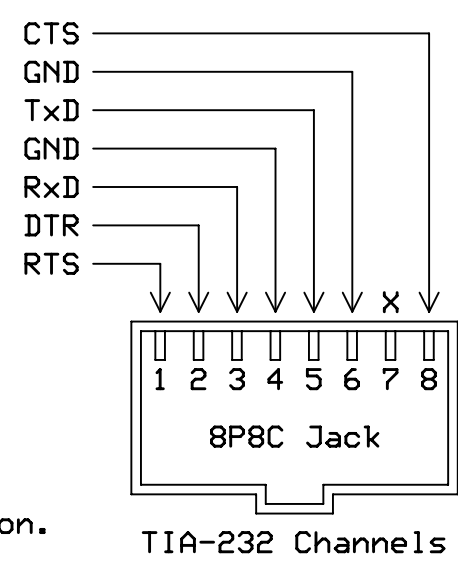
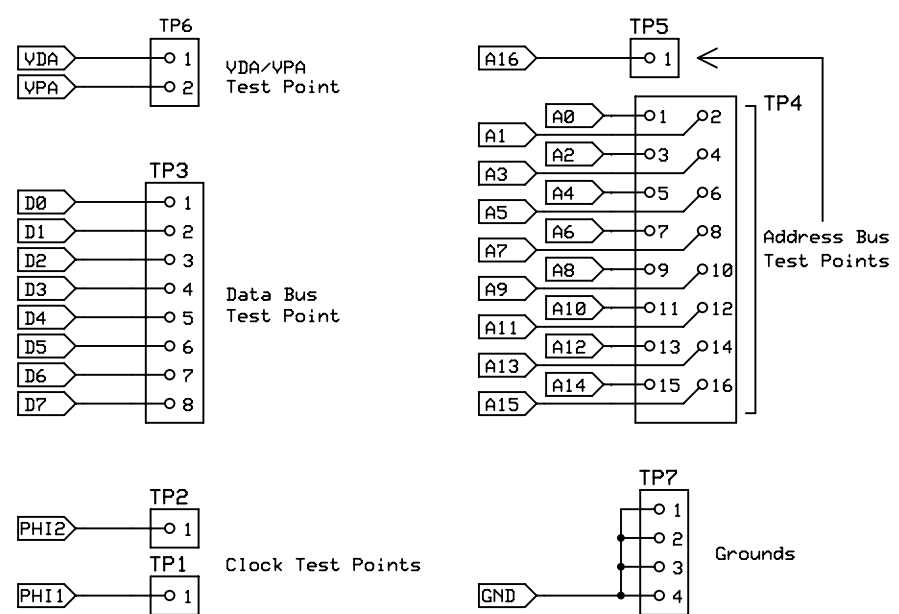
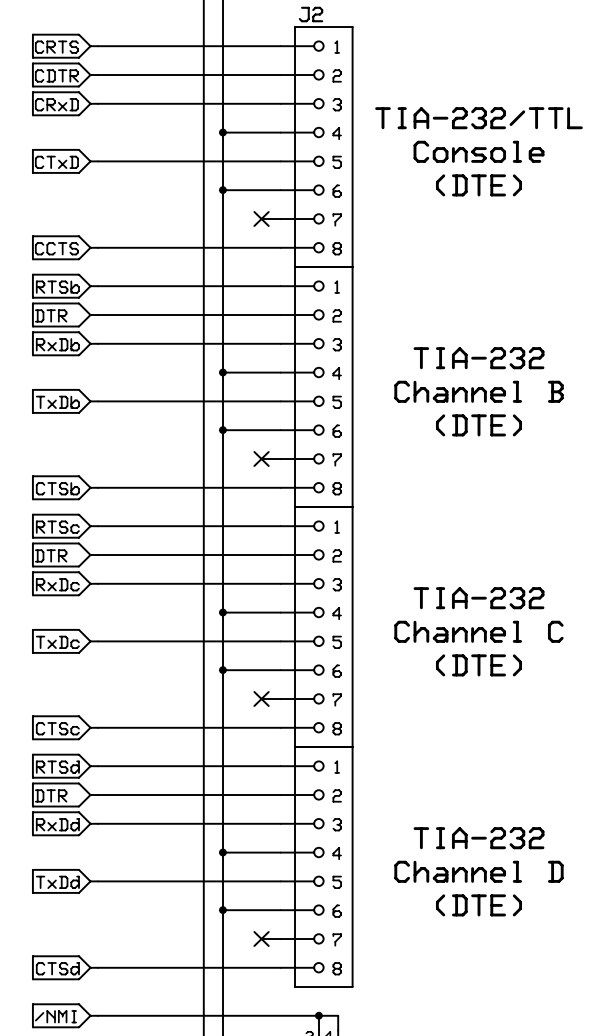
BCS Technology Limited		
W65C816S SINGLE BOARD COMPUTER		
BigDumbDinosaur	2022/08/04	Page 8 of 10
	Rev 1.4	



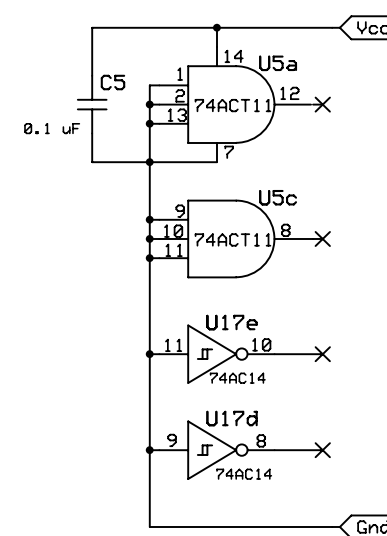
1	Ground	19	A4
2	Ground	20	RST
3	/IRQC	21	A3
4	XIOA	22	N/C
5	/IRQB	23	A2
6	/XIOB	24	N/C
7	/RD	25	A1
8	/XIOC	26	D7
9	/WD	27	A0
10	RWB	28	D6
11	/RST	29	D0
12	Ø2 clock	30	D5
13	Ø1 clock	31	D1
14	A6	32	D4
15	A5	33	D2
16	+5 volts DC	34	D3
17	+5 volts DC	35	Ground
18	+5 volts DC	36	Ground



Place C31 & C32 as close to J1 as possible.



1) Nachine check exception.



SPARE GATES

BCS Technology Limited

W65C816S SINGLE BOARD COMPUTER

BigDumbDinosaur	2022/08/04	Page 10 of 10
	Rev 1.4	