

# PROOF OF CONCEPT V2

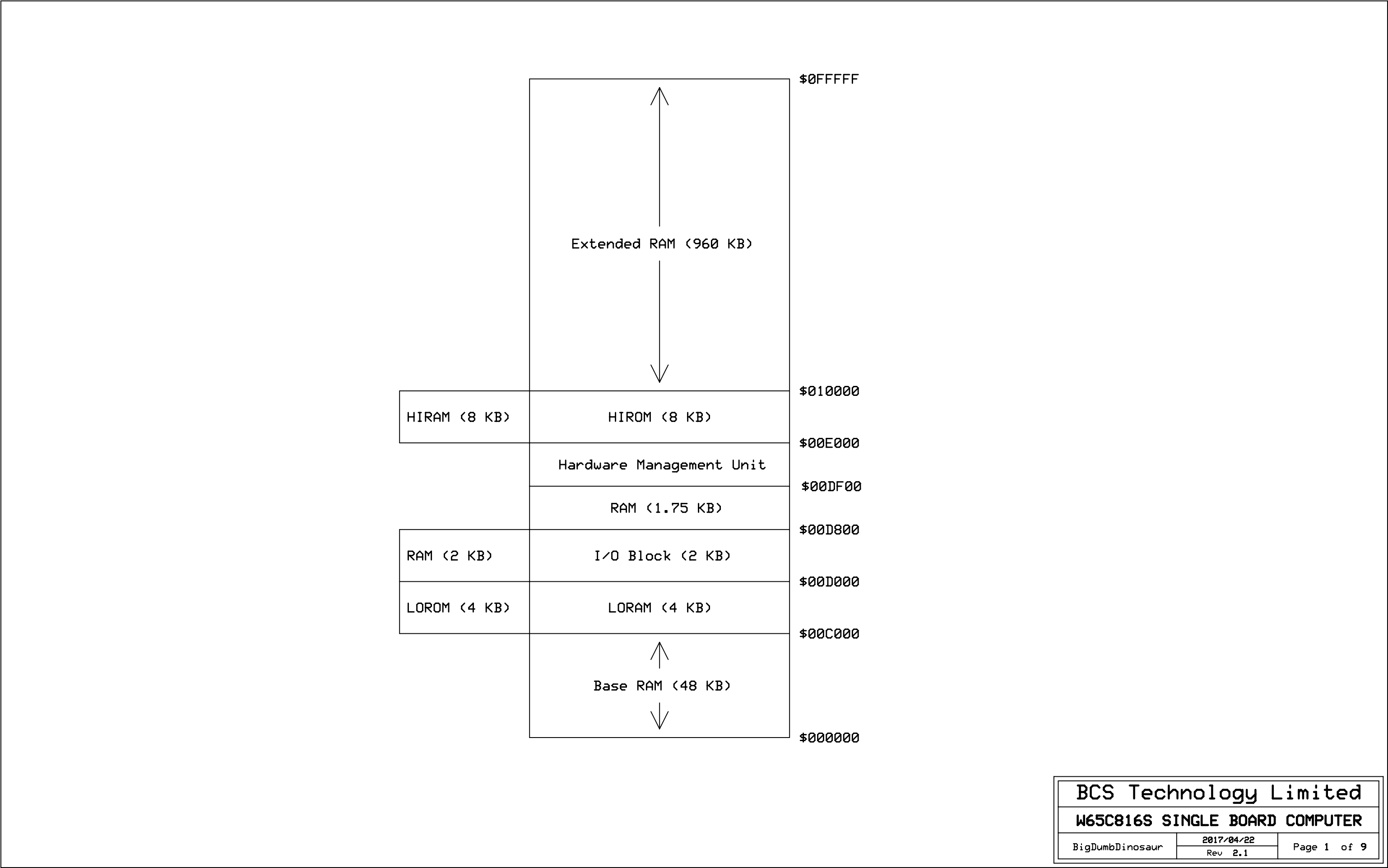
# SINGLE-BOARD COMPUTER

---

One Megabyte Static RAM System

Powered by the W65C816S Microprocessor

Designed by BigDumbDinosaur



POC V2 MEMORY MAP																							
	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
ADDRESS	A19	A18	A17	A16	A15	A14	A13	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0	SYMBOL	ASSIGNMENT	SIZE KB
\$000000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	BASRAM	Base RAM Start	48.00
\$00BFFF	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1		Base RAM End	
\$00C000	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LORAM (1) LOROM	Low ROM or RAM Start	4.00
\$00CFFF	0	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1		Low ROM or RAM End	
\$00D000	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	IOBLK (1) DORAM	I/O or RAM Start	2.00
\$00D7FF	0	0	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1		I/O or RAM End	
\$00D800	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	D8RAM	RAM Start	1.75
\$00DEFF	0	0	0	0	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1		RAM End	
\$00DF00	0	0	0	0	1	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	HMU (2)	HMU Start	0.25
\$00DFFF	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1		HMU End	
\$00E000	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	HIROM (1) HIRAM	High ROM or RAM Start	8.00
\$00FFFF	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		High ROM or RAM End	
\$010000	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	EXRAM	Extended RAM Start	960.00
\$0FFFFFF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		Extended RAM End	

1) Default at power-on or reset.  
2) Hardware management unit.

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	SYMBOL
\$00D000	1	1	0	1	0	0	0	0	SC28L92 DUART A-B, timer A	I00
\$00D100	1	1	0	1	0	0	0	1	SC28L92 DUART C-D, timer B	I01
\$00D200	1	1	0	1	0	0	1	0	DS1511Y RTC	I02
\$00D300	1	1	0	1	0	0	1	1	Expansion (XIOA)	I03
\$00D400	1	1	0	1	0	1	0	0	Expansion (XIOB)	I04
\$00D500	1	1	0	1	0	1	0	1	Expansion (XIOC)	I05
\$00D600	1	1	0	1	0	1	1	0	---	---
\$00D700	1	1	0	1	0	1	1	1	---	---

**HARDWARE MANAGEMENT UNIT**

ADDRESS	SYMBOL	DESCRIPTION	BIT	FUNCTION
00DF00	hmumcfg	Memory map configuration	0	0: I/O at 00D000-00D7FF 1: RAM at 00D000-00DEFF
			1	0: RAM at 00C000-00CFFF 1: ROM at 00C000-00CFFF
			2	0: ROM at 00E000-00FFFF 1: RAM at 00E000-00FFFF
			3	0: HIRAM write-enabled 1: HIRAM write-protected

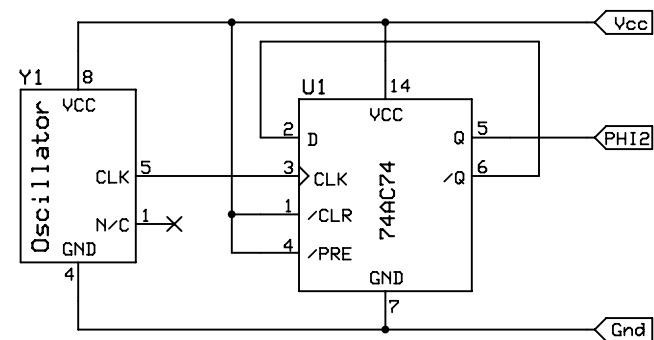
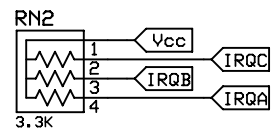
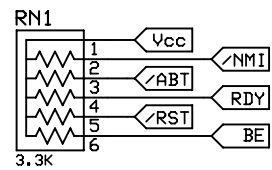
**BCS Technology Limited**

**W65C816S SINGLE BOARD COMPUTER**

BigDumbDinosaur

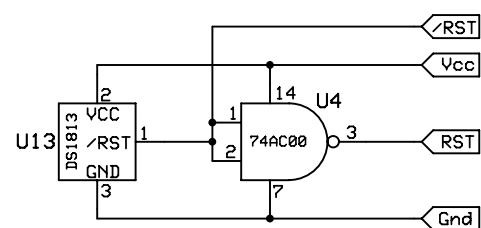
2017/04/22  
Rev 2.1

Page 4 of 9

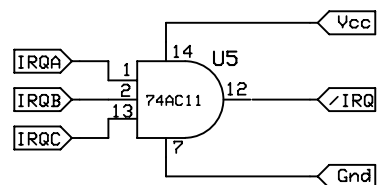


**Clock Generator**

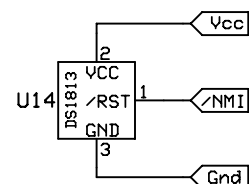
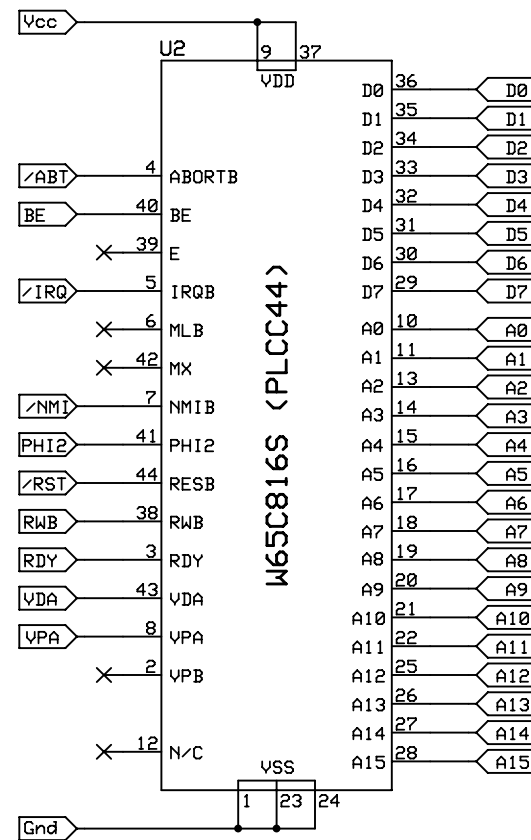
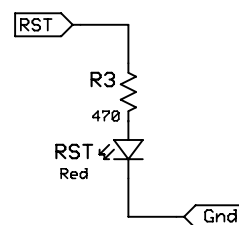
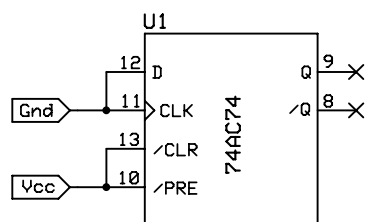
CLK = PHI2 =



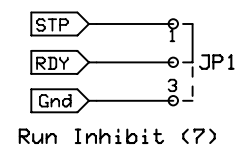
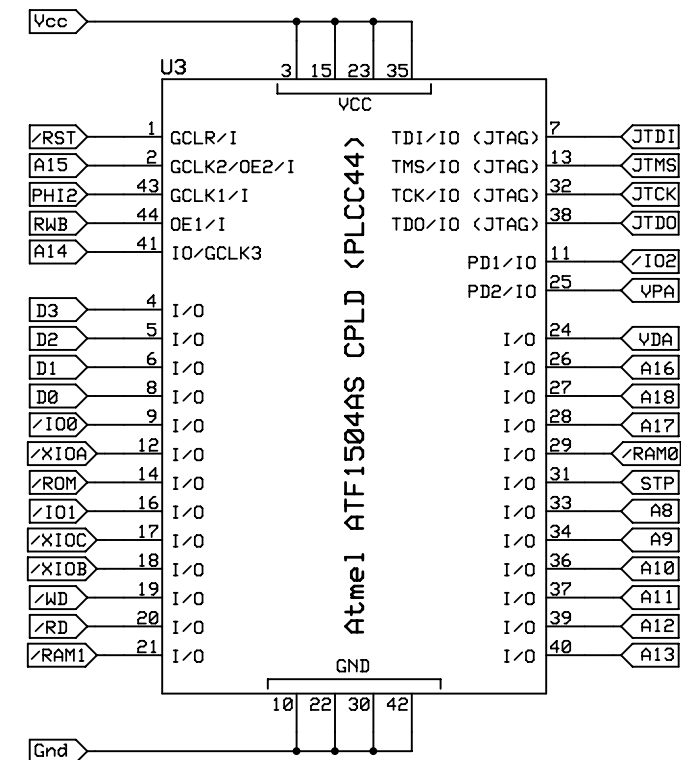
**Reset Generator**



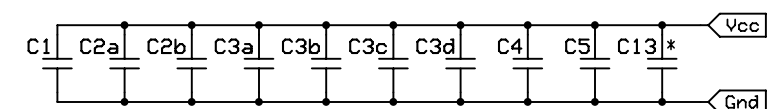
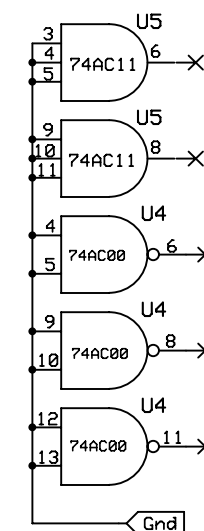
**IRQ Driver**



**NMI Debouncer**



Run Inhibit (?)



**Decoupling Capacitors -- 0.1 uf @ 50v**

\*C13 → Y1

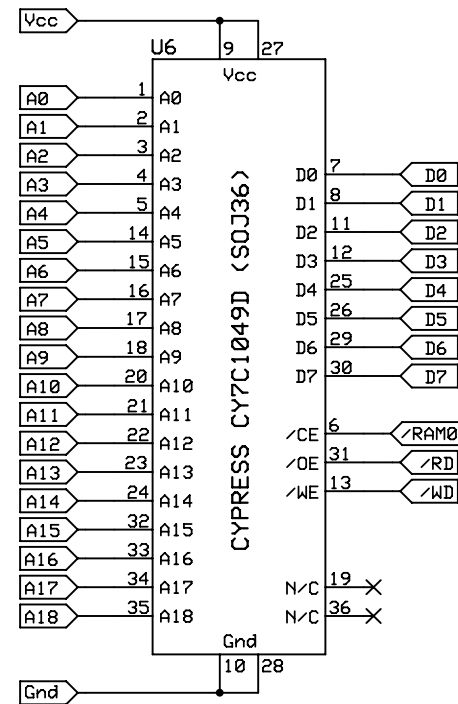
**BCS Technology Limited**

**W65C816S SINGLE BOARD COMPUTER**

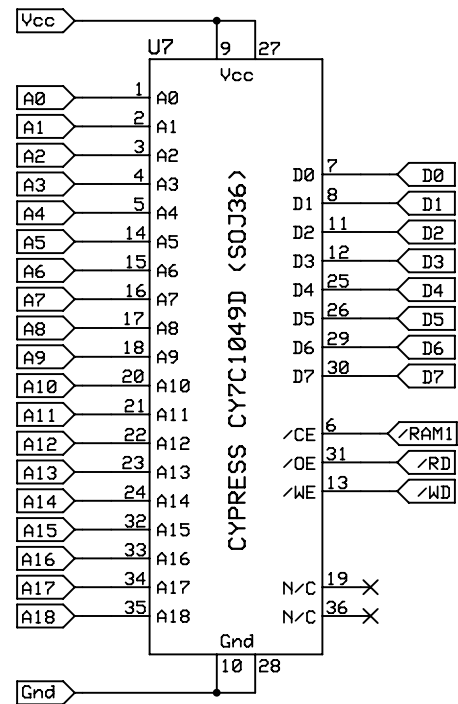
BigDumbDinosaur

2017/04/22  
Rev 2.1

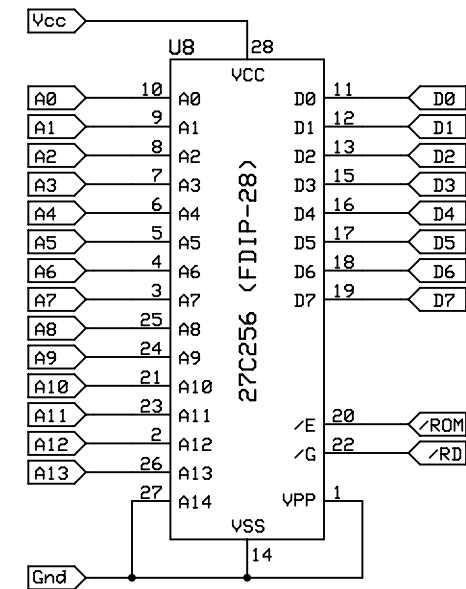
Page 5 of 9



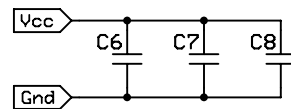
RAM (\$000000-\$07FFFF)



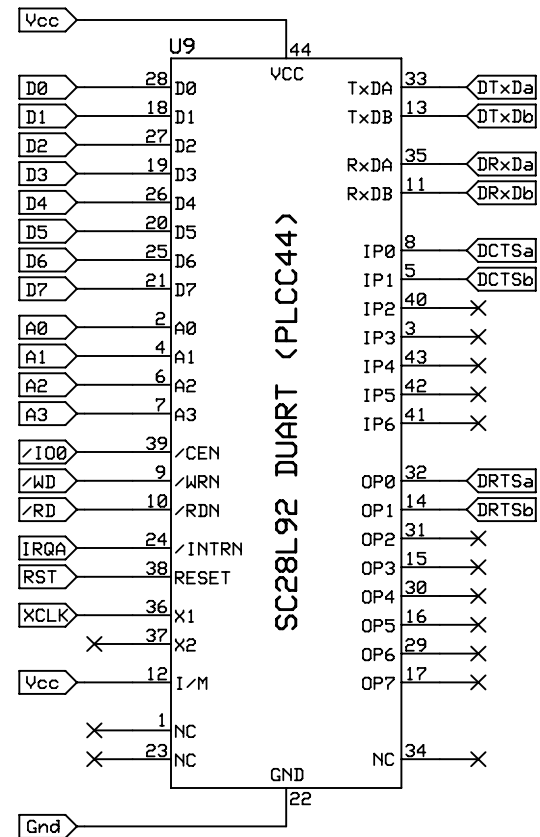
RAM (\$080000-\$0FFFFFF)



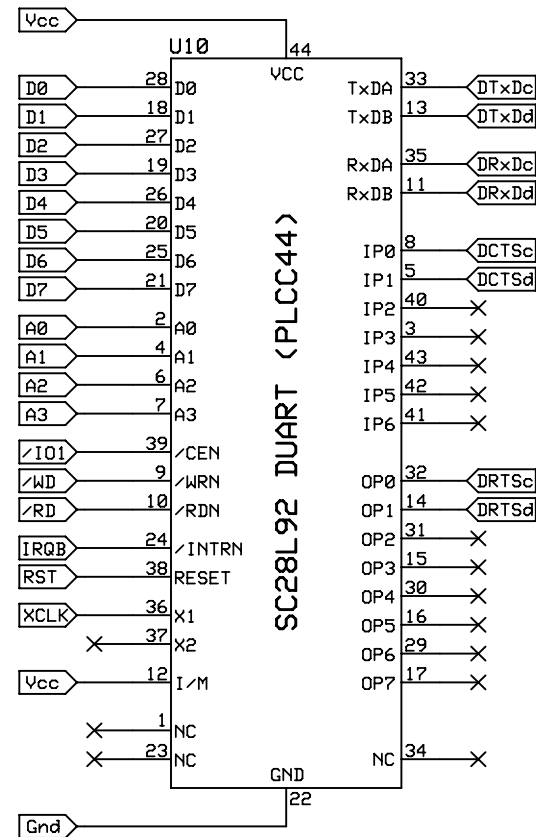
LOROM (\$00C000-\$00CFFF)  
HIROM (\$00E000-\$00FFFF)



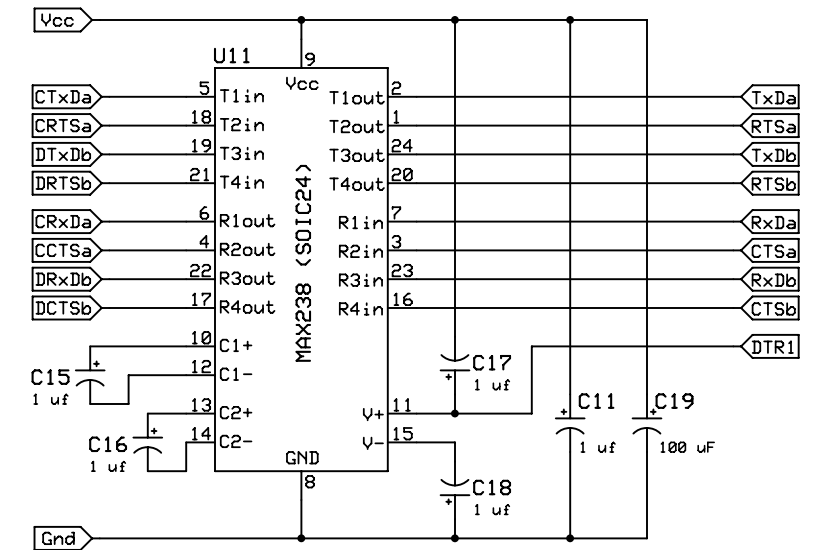
Decoupling Capacitors -- 0.1 uf @ 50v



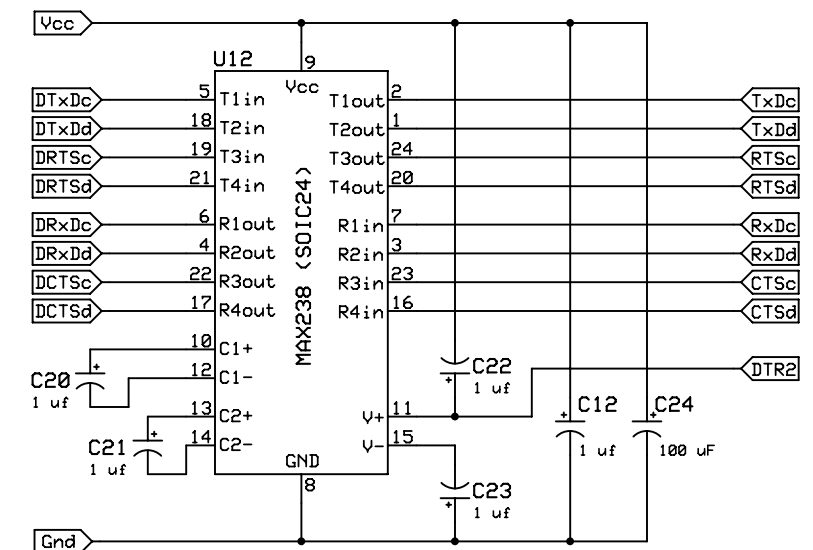
Channels A-B (\$00D000)



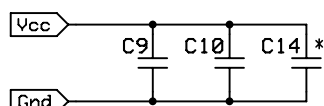
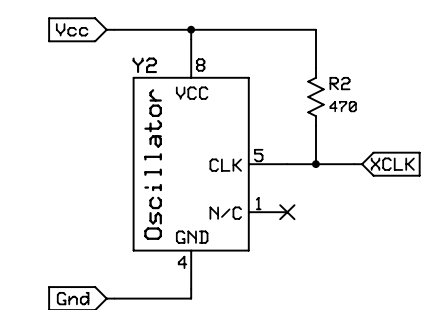
Channels C-D (\$00D100)



Channels A-B

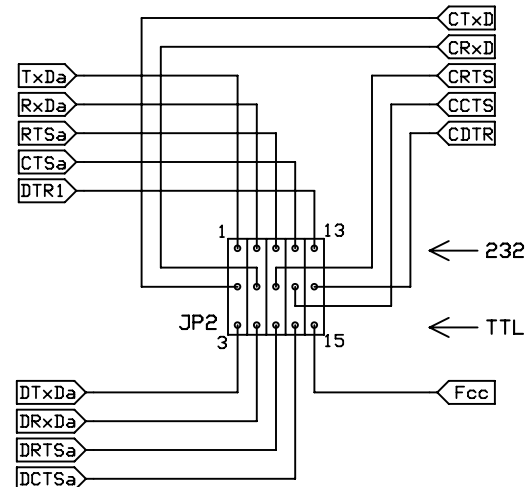


Channels C-D

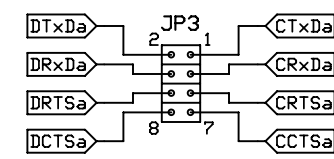


Decoupling Capacitors -- 0.1 uf @ 50v

\*C14 → Y2



Console Select (6)

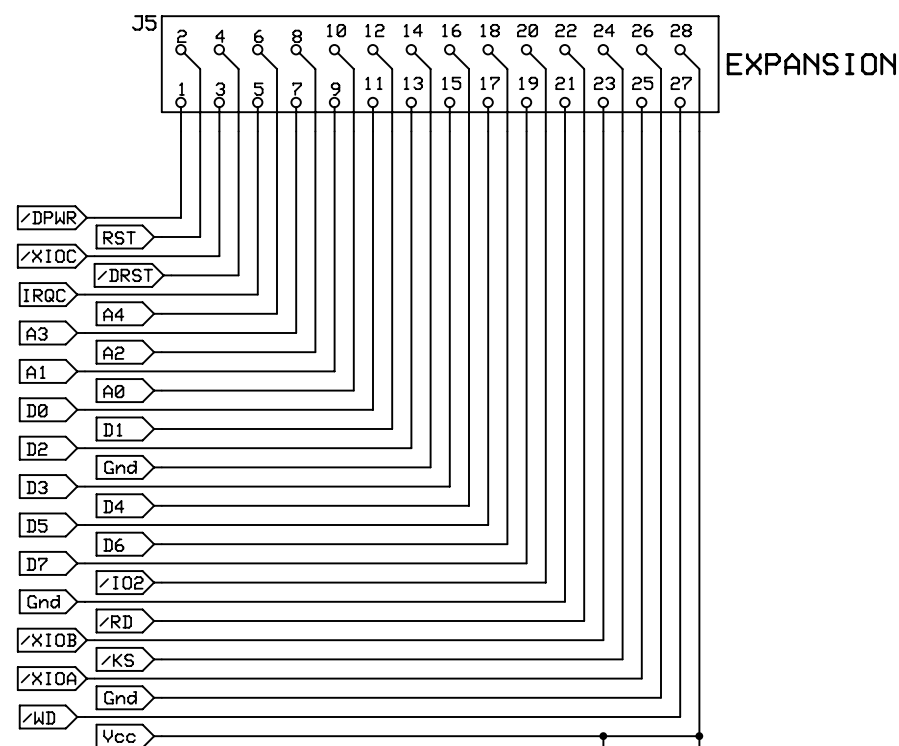


TIA-232 Console Enable (5)

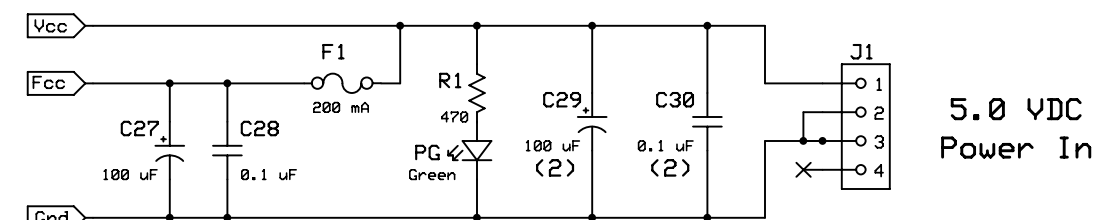
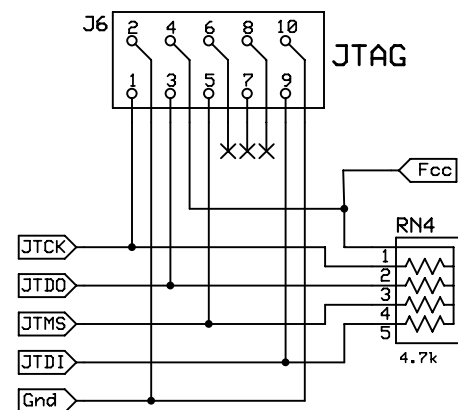
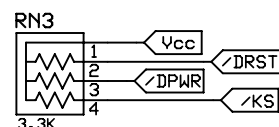
BCS Technology Limited  
W65C816S SINGLE BOARD COMPUTER

BigDumbDinosaur 2017/04/22 Rev 2.1 Page 7 of 9





Place C?? & C?? as close to J5 as possible.



Place C?? & C?? as close to J1 as possible.  
Place C?? & C?? as close to JP2 as possible.

