Subject: Homebrew expansion RAM
Posted by nessus on Thu, 30 May 2013 03:58:06 GMT
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*** REPLACE THIS LINE WITH YOUR MESSAGE ***

 1 +5V Power +5V Power for Speech Synthesizer
 2 SBE Output SPEECH BLOCK ENABLE CPU read from 90XXH
   or CPU write to 94XXH
 3 RESET/ Output System reset
 4 EXTINT/ Input EXTERNAL INTERRUPT User/expansion int.
 5 A5 Output Address Bit 5
 6 A10 Output Address Bit 10
 7 A4 Output Address Bit 4
 8 A11 Output Address Bit 11
 9 DBIN Output DATA BUS IN Hi=CPU read
10 A3 Output Address Bit 3
11 A12 Output Address Bit 12
12 READY Input Set READY=Lo for wait states
13 LOAD/ Input Causes CPU to fetch new Program Counter
   & Workspace pointer from FFFCH & FFFEH
14 A8 Output Address Bit 8
15 A13 Output Address Bit 12
16 A14 Output Address Bit 12
17 A7 Output Address Bit 7
18 A9 Output Address Bit 9
19 A15/CRUOUT Output Address Bit 15/CRU Data out(LS Address bit)
20 A2 Output Address Bit 2
21 GND Ground Ground reference
22 CRUCLK/ Output CRU strobe
23 GND Ground Ground reference
24 PH3/ Output 3MHz clock
25 GND Ground Ground reference
26 WE/ Output CPU write
27 GND Ground Ground reference
28 MBE/ Output DSR access 4000H->5FFFH
29 A6 Output Address Bit 6

30 A1 Output Address Bit 1
31 A0 Output Address Bit 0(MS Address bit)
32 MEMEN/ Output Memory access
33 CRUIN Input CRU read data
34 D7 Bidirectional Data Bit 7(LS Data bit)
35 D4 Bidirectional Data Bit 4
36 D6 Bidirectional Data Bit 6
37 D0 Bidirectional Data Bit 0(MS Data bit)
38 D5 Bidirectional Data Bit 5
39 D2 Bidirectional Data Bit 2
40 D1 Bidirectional Data Bit 1
41 IAQ Output Instruction Acquisition Cycle
42 D3 Bidirectional Data Bit 3
43 -5V Power -5V Power for Speech Synthesizer
44 AUDIO IN Input User Audio input to sound generator

Gotchas:

1. EVERY memory access consists of 2 sequential 8-bit accesses with odd (MS) byte written or read first.

2. A0 is MOST SIGNIFACANT address bit.

3. D0 is MOST SIGNIFICANT data bit.

CPU Address	INT RAM	EXP RAM	BUS BUF	EXP Address	Remarks
0000 -> 1FFF	Off	Off	Off	--Not Used--	Console ROM Access
2000 -> 3FFF	Off	On	On	0000 -> 1FFF	Low EXP RAM Access
4000 -> 5FFF	Off	Off	On	--Not Used--	DSR ROM Access
6000 -> 7FFF	Off	Off	Off	--Not Used--	Cartridge Acess
8000 -> 9FFF	On	Off	Off	--Not Used--	INT RAM/VDP/Speech Synth Access
A000 -> BFFF	Off	On	On	2000 -> 3FFF	High EXP RAM Access
C000 -> DFFF	Off	On	On	4000 -> 5FFF	High EXP RAM Access
E000 -> FFFF	Off	On	On	6000 -> 7FFF	High EXP RAM Access
0000 -> 1FFF	Off	Off	Off	--Not Used--	CRU Access

Data Path: