Subject: Re:TMS700x Memory Interface Mode Timing Spreadsheet UPDATE
Posted by jayindallas on Fri, 12 Apr 2024 15:16:08 GMT
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Re: ...to follow along on the timing discussion...
I understand what you're talking about... the databook documentation is a bit contorted in the area of various modes and resulting memory maps etc.
However I found a section of the '86 databook that puts that into good diagrams. If I can find sections for the x0,x1,x2 then I'll sort it out and post it as 70xx notes.

Spreadsheet for Micrprocessor Interface Mode - Memory Interface Timing:
Below, is a screen capture and I'll add some comments will appear below it on how it operates and some enhancements I'm considering.

The errors in the spreadsheet above will soon be corrected. Symbol #16 had an "EL" for Enable# LOW with a description "Enable# rise" that was corrented in the '89 Manual. Also in some of the lower formulas the multiplier is 1.5 x Tc(C) and not 0.5 x Tc(C).
This spreadsheet is based on a section about Microprocessor Interface Mode (external Memory), "Table 9-2. Memory Interface Timing" that appears on Page 9-5 in the 1986 TMS 7000 Series Databook.

For the 70x1 in Microprocessor Interface Mode -- Memory Interface Timing, Appendix C refers using the timing for the 70x0. That chart is not consistent with the 70x2 so I'll have to make a separate spreadsheet for the combined 70x0/70x1.

The Data Book I'm Using (reference to Appendix C)
I have the TMS7000 series documents listed below. I'm using a paperback version I used at Tandy Electronic Design (TED) back around '86 to '89.
ITEM-1 :: "TMS7000 Family Data Manual" | publication ID "SND001B" | version "June 1986, Revision B"
Updated these bitsavers.org links 2024/04/19:
https://bitsavers.org/components/ti/TMS7000/SPND001B_TMS7000_Family_Data_Manual_1986.pdf
NOTE: The Link/URL above is a PDF of the same paperback databook I'm using; you should find the Appendix C with the TMS70x1 references I've mentioned.
I'm going to look at this 1989 databook to look for corrections or improved data:
https://bitsavers.org/components/ti/TMS7000/SPND001C_TMS7000_Family_Data_Manual_1989.pdf

I've reconstructed part of a lost message here from a few days ago...
Its an index of all relevant SP & SPR pages in the GI 1982 Microelectronics PDF.

PAGE OFFSETS	DOCUMENT PAGE ID	PART NUMBER	COMMENTS OR DESCRIPTION

76	2-63	INDEX	AUDIO :: Speech ROMs
77	2-64	SPR016	2Kx8 Serial Read Only Memory (ROM)
83	2-70	SPR032	4Kx8 Serial Read Only Memory (ROM)
86	2-73	SPR128	16K Serial Read Only Memory (ROM) [i]Preliminary[/i]

284	5-3	INDEX	AUDIO :: Speech Synthesis
286	5-5	SP0256	Narrator(tm) Speech Processor
290	5-9	SP0256-AL2	Allophone Based Speech Processor
290	5-9	SP0232	32K Speech Processor [i]For future release[/i]
290	5-9	SPR000	Speech Interface Chip ...designed to interface a standard ROM, PROM, or EPROM to the SPO256 Speech Processor...
291	5-10	VSM2032	...eight TTL compatible signals are used to select the spoken phrase. Once selected, the VSM2032 requires no support from the user's circuit...
293	5-12	SP0250	Speech Synthesizer
296	5-15	SFD2000	Speech Field Development Board ...Its is used to demonstrate and test synthetic speech or complex sounds before they are committed to masked Rom.

NOTE: The "Field Development Board uses the SPR000 as an interface to memory.
Its proof that your Daisy256 concept can work after finding all hurdles.

File Attachments

1) TMS70x2_Memory_Interface_Mode_Timing.png, downloaded 678 times