

## MODIFICATION LEVEL SUMMARY

Product Type 64KZ-II Revision D1 Date Issued August 1, 1983 Page 1 of 1

Mod Level	Date Released	Type of Change	Reason For Change
1	4/2/82	<p>Superceded by ML2.            Change C79 from .001 PF to 470 PF Mono.            Change C121 from 470 PF to .001 PF Mono.</p>	<p>The 470 PF will lenghten the interval between the DMA board disable signal and the first SMI signal from 25us to 80us.            For SDI DMA and general operation with WAIT states added.</p>
2	4/23/82	<p>On the component side, cut the trace from IC2 pin 1 and jump IC2 pin 9; put back the 560 ohm resistor (R3, P/N 001-0015).            This avoides item 1 of ML 1 above</p>	<p>Since the 8us refresh counter is not cleared, the DPU in its 68000 mode can queue up a refresh request which can be clocked out just after the first request, thus locking up the curcuit. If the flip-flop clocked by the counter (IC2 pins 1-6) is kept "cleared" (jumping lin 1 to pin 9) the queued up refresh request will be held off until the proper time. This also corrects the SDI Host DMA problem.</p>

## MODIFICATION LEVEL SUMMARY

64KZ-II

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Mod Level	Date Released	Type of Change	Reason For Change
1	3/19/82	<p>On the solder side:</p> <ol style="list-style-type: none"><li>1.) Jump IC35 Pin 14 to adjacent +5V trace</li><li>2.) Jump IC54 Pin 2 to IC43 Pin 2.</li><li>3.) Jump CN6 Pin 1 to adjacent ground trace.</li><li>4.) Jump RN6 Pin 1 to top plate-through hole of R14.</li><li>5.) Scrape solder mask off top hole of D3.</li><li>6.) CN6 should be 100 PF (005-0021). R13 should be 2.2K ohm (001-0021).</li></ol>	Artwork corrections.

Product Type <u>64KZ</u>		<b>MODIFICATION LEVEL SUMMARY</b>	
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Mod Level	Date Released	Type of Change	Reason For Change
1	2/18/81	Delete 20 Mhz Crystal, 026-0002, from board.	Not needed. Delay line is now used.
2	6/1/81	On solder side, <u>cut trace</u> and <u>jump</u> the two feedthrough holes.	This will route SOUT through the deglitching RC network (RN5 & C69) to IC59-10. Noise on SOUT taken directly off the bus could generate an invalid bank select pulse to IC8-9, causing the system to crash, when writing to memory addresses with lower addresses of 40H (also the bank select port).
3	11/24/81	<p>On the solder side:</p> <p style="padding-left: 20px;">Cut the MEMDISBL jumper, shown as point A on artwork.</p> <p style="padding-left: 20px;">Jump point A (Bus side) to IC23 pin 5.</p> <p style="padding-left: 20px;">Jump IC23 pin 4 to IC40 pin 3.</p> <p style="padding-left: 20px;">Jump point A (Bus side) to IC23 pin 5.</p> <p style="padding-left: 20px;">Jump IC36 pin 6 to IC3 pin 2.</p> <p style="padding-left: 20px;">Jump IC36 pin 4 to IC36 pin 14.</p> <p>On the component side:</p> <p style="padding-left: 20px;">Pull pin 1 of IC59 &amp; jump to IC23 pin 6.</p> <p style="padding-left: 20px;">Pull pin 2 of IC3 &amp; jump to IC36 pin 3.</p>	This mod allows the 64KZ to be properly enabled and disabled for all operations. However, it will, in effect, create a new Board (64KZ-SDI, 520-0120) to be used <u>only in SDI systems</u> to replace the 64KZ Rev. J1 in a CDOS system (voiding ECO 776, ML 3 on the 48KTP) or a 64KZ Rev. J1 in the same bank as the 48KTP's in a CROMIX system.

**MODIFICATION LEVEL SUMMARY**

J, J1 (contd.)

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Mod Level	Date Released	Type of Change	Reason For Change
10	6/1/81	On solder side, <u>cut trace</u> and <u>jump</u> the two feedthrough holes as shown.	This will route sOUT through the deglitching RC network (RN5 & C69) to IC59-10. Noise on sOUT taken directly off the bus <u>could</u> generate an invalid bank select pulse to IC8-9, causing the system to crash, when writing to memory addresses with lower addresses with lower address of 40H (also the bank select port).



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Product Type <u>64KZ</u>		Revision <u>J, J1</u>	Date Issued <u>August 1, 1983</u> Page <u>1</u> of <u>3</u>
Mod Level	Date Released	Type of Change	Reason For Change
1	8/20/80	Change IC77 from 74LS374 to 74LS373.	Considering a worst case ZPU-data from the ZPU (in a write cycle) is not stable on the rising edge of the clock to IC77, causing incorrect data to be written to the memory. Using a transparent flip-flop gives more time for this data to stabilize since it is only sampled when CAS goes low.
2	8/20/80	Change R12 from 2.7 to 4.7K.	To guarantee, that on reset, IC23-12 is pulled to a valid low.
3	8/20/80	Change IC56 from 74LS14 to 74S04. Change R36 from 820ohm to 100ohm. Change R37 from 1.8Kohm to 390ohm. Change C82 from 330pf to 1Kpf.	IC56 was used incorrectly in the Johnson counter and had a fanout problem. IC56 was replaced by S04 and corresponding changes in R-C values were made to compensate for this change since two gates of IC56 are also used in the DMA control circuitry.
4	8/20/80	Change C13 from 100pf to 220pf and R10 from 240ohm to 100ohm. Change R11 from 270ohm to 150ohm. Change R9 from 470ohm to 220ohm. Change R35 from 270ohm to 220ohm and C81 from 220pf to 330pf.	R-C network changed to conform with the worst case Schottky input characteristics.
5	9/9/80	Change C59 from 220pf mono cap to 470pf mono cap.	Compatibility with 48KTP: This RC fix slows down the start of an M-1 cycle by 18ns (21ns to 39ns propagation delay from IC20-5 to IC21-6) so that MEMDISABLE will be clocked in when valid at the 74LS175, IC41.

MODIFICATION LEVEL SUMMARY			
Product Type	64FDC	Revision	B
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Mod Level	Date Released	Type of Change	Reason For Change
1	1/24/83	1) Solder side: Cut traces from IC1 Pin 5 and RN1 Pin 2. Jump RN1 Pin 2 to IC1 Pin 5. 2) Solder side: Cut trace from RN1 Pin 4 to IC3 Pin 8 (unnecessary with Rev A of RN1). 3) Solder a 47 PF monolithic capacitor (004-0000) from IC2 Pin 2 to IC2 Pin 7.	1) Reduces crosstalk into the high impedance error signal. 2) Corrects feedback loop frequency response. 3) Improves hysteresis at the sawtooth bottom comparator to ensure a solid rising edge.
2	2/28/83	1.) Solder side: Cut the trace from IC30 Pin 1. 2.) Solder side: Jump IC14 Pin 2 to IC14 Pin 13. 3.) Solder Side: Jump IC14 Pin 12 to IC30 Pin 1.	Inverts the clock into the PAL to correct a set-up time violation, which was causing write errors.
3	3/15/83	1. Item #2 of ECO 1517 above is now void. 2. Add a jumper from C59 (above ground) to the left side of L3.	1.) Rev A. of RN1 (003-0065) now in use. 2.) Artwork correction.