

## OPTIMIZING USAGE OF THE AIM-65 I/O BLOCK

The AIM-65 uses an entire 4K block of addresses from A000 to AFFF to address its numerous I/O functions. Of these 4096 possible addresses, only 248 are actually "used" however. Due to the address decoding logic in the AIM, the remaining 3848 addresses map back into the 248 used ones and therefore none are left over for use by external bus interface boards. Fortunately a very simple modification to the AIM-65 computer board, which does not involve any trace cutting, can be made which will free up 2048 of these addresses in four blocks of 512 bytes each. This modification in no way affects normal AIM-65 operation or any user program that uses the published addresses of the AIM-65 I/O ports.

### MODIFICATION PROCEDURE

To make the modification, follow these steps:

1. Disconnect the AIM from its keyboard and any power supplies and turn it over on its back.
2. Locate IC's Z13 and Z19 and locate their pin 1 designation.
3. Connect a jumper wire from Z13 pin 11 to Z19 pin 1. Fine gauge insulated wire, such as #30 wire-wrap wire is recommended.
4. Locate Z9 which is the 6502 microprocessor chip.
5. Connect a wire from Z9 pin 18 to Z13 pins 12 and 13.
6. The modification is complete. If necessary the AIM may be restored to its original condition simply by removing the two wires.
7. Reassemble the AIM and power it up. It should operate normally.
8. Look at memory location A200. Its contents will probably read A2. Likewise A300 will show A3, A600 - A6, A700 - A7, AA00 - AA, AB00 - AB, AE00 - AE, and AF00 - AF. This proves that nothing on-board the AIM is responding to these addresses.

The modification works by enabling the address decoder for I/O addresses only when bit 9 of the address bus is a logic zero. Z13, which is a 74LS00 IC, is wired as an inverter which inverts address bit 9 so that the active-high enable input to the 74LS155 decoder, Z19, is high when A9 is low. The 4.7K pullup resistor that is connected to the decoder's enable input causes no ill effects when left in the circuit.

### USAGE OF THE FREED UP SPACE

The modification listed above frees up the following blocks of memory on the AIM-65: A200-A3FF, A600-A7FF, AA00-ABFF, AE00-AFFF. The most likely usage is for the I/O page of one or two K-1012 ROM/IO boards. The first K-1012 should have its I/O page set to AE and the second K-1012 should be set for AF. Unfortunately the 512 byte blocks are not large enough for any of the PROM's on the K-1012 so PROM, if used, should be assigned elsewhere in the AIM's address space. Another use for the space would be in custom bus interface circuits constructed on a K-1020 Prototyping board.