Rockwell

AIM 65
DATA SHEET
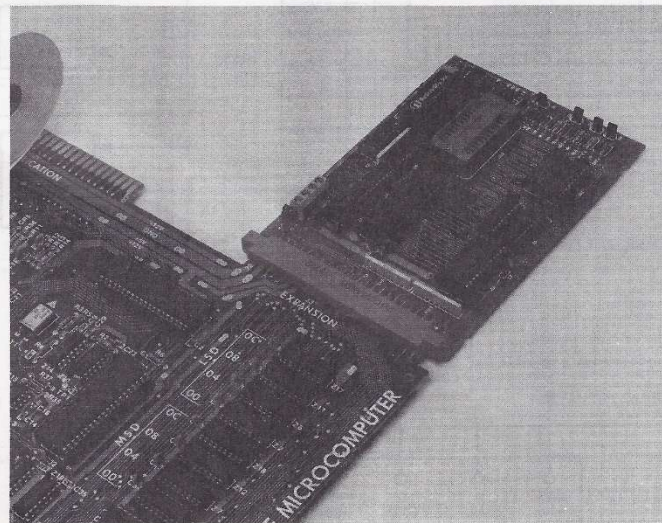
AIM 65 PROM PROGRAMMER AND
CO-ED MODULE

The AIM 65 PROM Programmer and CO-ED Module (A65-901) programs 1K-, 2K-, and 4K-byte PROMs that can be installed in the AIM 65 or in a Microflex 65 16K PROM/ROM Module. The PROM Programmer provides check, program, verify and read functions.

The utility of the Module is enhanced through the included Object Code Editor (CO-ED). CO-ED allows you to edit object code in much the same way as you can edit source code for the AIM 65 Assembler, using AIM 65's Text Editor. With CO-ED, patches can be made directly in your program without having to go through the time-consuming process of re-assembling.

The AIM 65 PROM Programmer and CO-ED Module also supports data load, verify and dump with offset functions. And the Module plugs directly into the AIM 65 Expansion Connector.

FEATURES

- Plugs directly onto the AIM 65 Expansion Connector
- Programs the following 5 volt PROMs (or equivalents):
  - Intel 2758, 2716 and 2732
  - TI TMS 2508, 2516 and 2532
- Provides programming functions to check, program, verify and read PROM
- Includes utility functions to load, verify, dump and and invert memory
- Incorporates object code editor (CO-ED) functions to control program pointers; search for operands, jumps/branches and strings; and to modify instructions with automatic address adjustment
- 1K bytes of Static RAM are included to allow single-pass programming of a 4K-byte PROM when used with a 4K RAM version of AIM 65
- Zero insertion force (ZIF) socket for PROM being programmed
- On-board DC/DC Converter allows +5V-only operation
- Fully assembled, tested and warranted

AIM 65 PROM PROGRAMMER AND CO-ED MODULE

FUNCTIONAL DESCRIPTION

The R6520 Peripheral Interface Adapter (PIA) is the primary interface device between the AIM 65 Expansion Connector and the 24-pin Zero Insertion Force PROM socket and control circuits. During PROM programming, PROM address, PROM data and programming control signals are transmitted to the PIA on the AIM 65 Expansion Connector data lines. During PROM check, verify and read operations, only PROM address and control signals are issued to the PIA from the AIM 65.

Four PIA I/O Lines carry the most significant address signals to the PROM. Eight other PIA I/O lines multiplex the PROM data and least significant address signals. One output line controls the Tri-State Data Latch. Five other PIA I/O Lines control the Power Switches.

During PROM programming, PROM data is transferred to the tri-state Data Latch, which drives the latched data to the PROM. The PROM address is then sent to the PROM on the eight multiplexed data/address lines and the four dedicated address lines. The Power Switches are then turned on to apply the proper voltage levels for the required time duration to transfer the 8-bits of data into one PROM location. The process is repeated until the specified PROM address range is fully programmed. The tri-state Data Buffer is disabled during programming.

During PROM read operations, the PIA sets the address lines to the PROM. The tri-state Data Buffer drives the PROM data onto the AIM 65 Expansion Connector data lines. The Data Latch is disabled at this time.

The Power Switches drive +5V or +26V onto three PROM socket programming lines depending on the PROM type selected.

The 4K R2332 ROM contains the PROM Programmer and CO-ED firmware.

1K bytes of on-board RAM are provided for use by the PROM Programmer and CO-ED software. The RAM is mapped from $1000-$13FF to provide contiguous addressing from the top of a 4K RAM AIM 65.

The Address Decode circuitry generates individual chip select signals to the RAM, ROM, PIA and the Data Buffer.

The PROM Programmer and CO-ED Module may be powered from the AIM 65 or from an external +5V power supply. A DC/DC Voltage Converter generates +30V from +5V. The +30V is regulated to +26V for on-board use. The +30V may be connected to an external power supply to minimize current drain on the +5V supply.
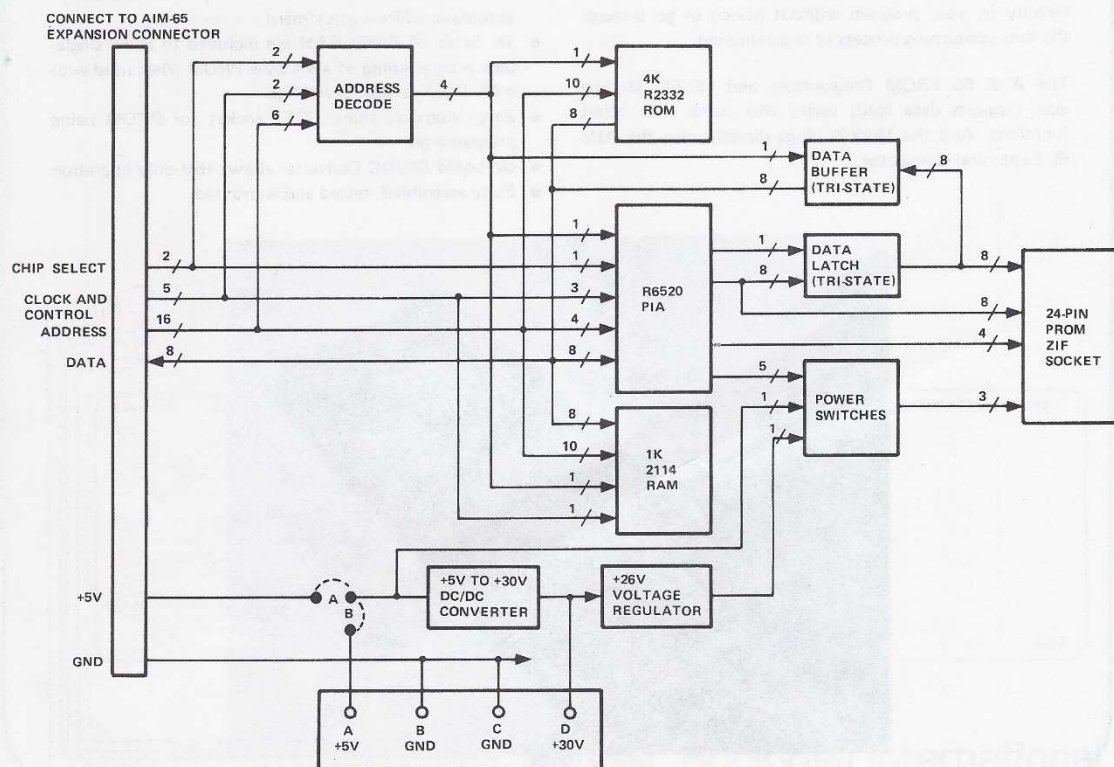
AIM 65 PROM Programmer and CO-ED Module Block Diagram

AIM 65 Expansion Connector Pin Assignments

	Top (Component Side)				Bottom (Solder Side)		
Signal Mnemonic	Signal Name	Input/ Output	Pin	Pin	Signal Mnemonic	Signal Name	Input/ Output
SYNC	*Sync	O	1	A	A0	Address Bit 0	I
RDY	*Ready	I	2	B	A1	Address Bit 1	I
φ1	*Phase 1 Clock	O	3	C	A2	Address Bit 2	I
IRQ	*Interrupt Request	I	4	D	A3	Address Bit 3	I
S.O.	*Set Overflow	I	5	E	A4	Address Bit 4	I
NMI	*Non-Maskable Interrupt	I	6	F	A5	Address Bit 5	I
RES	Reset	I	7	H	A6	Address Bit 6	I
D7	Data Bit 7	I/O	8	J	A7	Address Bit 7	I
D6	Data Bit 6	I/O	9	K	A8	Address Bit 8	I
D5	Data Bit 5	I/O	10	L	A9	Address Bit 9	I
D4	Data Bit 4	I/O	11	M	A10	Address Bit 10	I
D3	Data Bit 3	I/O	12	N	A11	Address Bit 11	I
D2	Data Bit 2	I/O	13	P	A12	Address Bit 12	I
D1	Data Bit 1	I/O	14	R	A13	Address Bit 13	I
D0	Data Bit 0	I/O	15	S	A14	Address Bit 14	I
-12V	*-12 Vdc		16	T	A15	Address Bit 15	I
+12V	*+12Vdc		17	U	SYS φ2	System Phase 2 Clock	O
CS8	Chip Select 8	O	18	V	SYS R/W	System Read/Write	O
CS9	Chip Select 9	O	19	W	R/W	Read/Write "Not"	O
CSA	*Chip Select A	O	20	X	TEST	Test	O
+5V	+5 Vdc		21	Y	φ2	Phase 2 Clock "Not"	O
GND	Ground		22	Z	RAM R/W	RAM Read/Write	O

NOTE:

* = Not used on this module.

PROM Programmer Commands

Category	Command	Function
ENTRY/EXIT	F1	ENTER PROM PROGRAMMER
	F2	RE-ENTER PROM PROGRAMMER
	ESC	ESCAPE TO MONITOR
BASE ADDRESS	B	PROM BASE ADDRESS
	O	RAM BASE ADDRESS
PROM	C	CHECK PROM
	P	PROGRAM PROM
	V	VERIFY PROM
	R	READ PROM
MEMORY	L	LOAD MEMORY
	T	VERIFY MEMORY
	D	DUMP MEMORY
	M	FILL MEMORY
	I	INVERT MEMORY
RECORDER CONTROL	1	TOGGLE RECORDER CONTROL LINE 1 ON/OFF
	2	TOGGLE RECORDER CONTROL LINE 2 ON/OFF

CO-ED Commands

Category	Command	Function
ENTRY/EXIT	F3	ENTER CO-ED
	/	EXIT CO-ED
	ESC	ESCAPE TO MONITOR
POINTER CONTROL	W	LOCATE PROGRAM
	T	MOVE TO TOP OF PROGRAM
	B	MOVE TO BOTTOM OF PROGRAM
	U	MOVE UP ONE INSTRUCTION
	D	MOVE DOWN ONE INSTRUCTION
	G	GO TO ADDRESS
	X	EXCHANGE POINTERS
SEARCH	F	FIND AN OPERAND
	J	FIND JUMPS AND BRANCHES
	S	FIND A STRING
PROGRAM MODIFICATION	I	INSERT AN INSTRUCTION
	$	STRIKEOUT AN INSTRUCTION
	A	ADJUST INSTRUCTION BLOCK
	C	CHANGE INSTRUCTION
	M	MOVE INSTRUCTION/DATA BLOCK
	R	RELOCATE
UTILITY	!	FILL MEMORY
	K	DISASSEMBLE MEMORY

PROM Programmer and CO-ED Module Physical and Electrical Characteristics

Characteristic	Value
Dimensions	
Width	4.4 in. (111 mm)
Length	6.3 in. (160 mm)
Height	0.75 in. (19 mm)
Weight	5.3 oz. (150 g)
Environment	
Operating Temperature	$0^{\circ}C$ to $70^{\circ}C$
Storage Temperature	$-40^{\circ}C$ to $85^{\circ}C$
Relative Humidity	0% to 85% (without condensation)
Power Requirements	
With DC/DC Converter	$+5V \pm 5\%$, 1.1 A (5.5 W) — Maximum
Without DC/DC Converter	$+5V \pm 5\%$, 0.75 A (3.75 W) — Maximum
	$+30V \pm 5\%$, 0.04A (1.2 W) — Maximum
Memory Map	
User RAM:	$1000 — $13FF
I/O:	$8800 — $8FFF
ROM:	$9000 — $9FFF