Rockwell

RM65-7101E
RM 65 SINGLE CARD ADAPTER FOR AIM 65

RM 65 MICROCOMPUTER MODULES

The RM65-7101E Single Card Adapter for the AIM 65 Microcomputer is one of the hardware options available for the RM 65 Microcomputer Module family.

RM 65 Microcomputer Module products are designed for OEM and end user microcomputer applications requiring state-of-the-art performance, compact size, modular design and low cost. Software for RM 65 systems can be developed in R6500 Assembly Language, PL/65, BASIC and FORTH. Both BASIC and FORTH are available in ROM and can be incorporated into the user's system.

RM 65 module products use a motherboard interconnect concept and accept any card in any slot. The 64-line RM 65 Bus offers memory addressing up to 128K bytes, high immunity to electrical noise and includes growth provisions for user functions. A selection of card cages provides packaging flexibility. RM 65 products may also be used with Rockwell AIM 65 and AIM 65/40 Microcomputers for product development and for a broad variety of portable or desktop microcomputer applications.

ORDERING INFORMATION

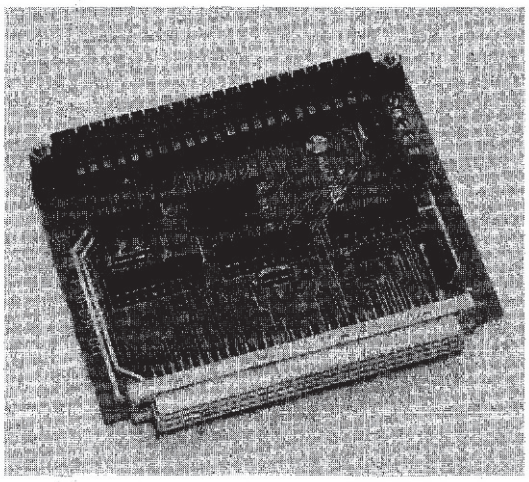
Part No.	Description
RM65-7101E	Single Card Adapter for AIM 65

FEATURES

- Drives one RM 65 Bus-compatible module
- Provision for power and ground routing
- Extends address, data and control lines
- Pin and socket bus connector
- Fully assembled, tested and warranted

PRODUCT OVERVIEW

The RM65-7101E Single-Card Adapter allows one RM 65 Bus compatible module to be connected to the AIM 65 Master Module, through the AIM 65 Expansion connector. The Adapter routes the AIM 65 address, data and control lines from the AIM 65 Expansion connector pin assignments to the RM 65 Bus pin assignments. Drive circuitry is included on the address and data lines.



RM65-7101E Single Card Adapter for AIM 65

FUNCTIONAL DESCRIPTION

The Single Card Adapter interfaces AIM 65 Expansion Connector signals to an attached RM 65 Bus receptacle. Data and address lines are buffered, whereas control lines are directly wired. All signals are routed from the AIM 65 Expansion Connector positions to corresponding RM 65 Bus receptacle pin positions. Ground is connected to the interspersed RM 65 Bus GND pins.

The Data Transceivers invert and drive 8-bits of parallel data between the AIM 65 Expansion Connector and the RM 65 Bus interface. During a write operation, data received from the AIM 65 Expansion Connector are driven into the interfacing RM 65 module. During a read operation, data read from the RM 65 module are transmitted into the AIM 65. When the RM 65 module is not addressed, the transceivers are disabled.

The Address Buffers invert and buffer 16 parallel address bits from the AIM 65 to the connected RM 65 module. The bank address line is held high to address Bank 0 (lower 65K) in the interfacing RM 65 module.

Eleven control and timing signals are directly connected between the AIM 65 Expansion Connector and the RM 65 module. The read/write, phase 2 clock, phase 1 clock, sync and reset AIM 65 output lines are routed directly to the RM 65 receptacle. The ready, interrupt request, set overflow and non-maskable interrupt lines from the RM 65 receptacle are connected straight through to the AIM 65 Expansion Connector interface.

A terminal block allows external +5V, +12V/+V, and −12V/−V power supplies to be connected as required. An on-board jumper allows the +5V for the RM 65 module to originate from the AIM 65 Expansion Connector or from the external +5V power supply.

POWER CONNECTION

+5 VOLT POWER CONNECTION

The +5 volt (+5V) required for the Single Card Adapter can be provided from the AIM 65 microcomputer through the AIM 65 Expansion Connector or directly from an external power supply through a connection to the on-board terminal board (TB1). Jumper A/B routes the +5V power from the selected source.

CAUTION

Turn off the external power supply before connecting power leads to the Single Card Adapter.

AIM 65 +5V POWER SOURCE CONNECTION

a. Install Jumper A/B in the A position.

b. Disconnect the +5V lead of the external power supply from the +5V connection on TB1.

WARNING

If the mating RM 65 module draws over 0.5A, the external connection to +5V must be used or the AIM 65 Master Module may be damaged.

EXTERNAL +5V POWER SOURCE CONNECTION

a. Install Jumper A/B in the B position.

b. Connect the +5V lead from the external power supply to the +5V connection on TB1.

c. Connect the ground lead from the external +5V power supply to either of the two GND connections on TB1.

±12V/±V POWER CONNECTION

Connection points are provided on TB1 for ±12 Vdc, or other voltages, as required by the mating RM 65 module.

a. Connect the +12V/+V lead from the external power supply to the TB1 connection marked +15V or +V. This terminal is connected to connector J1 pin 17a.

b. Connect the −12V/−V lead from the external power supply to the TB1 connection marked −15V or −V. This terminal is connected to connector J1 pin 16c.

INSTALLATION

Before installing the module, inspect for damage and grease, dirt, liquid or other foreign material that will affect performance.

CAUTION

Prior to module installation, turn off power to the AIM 65 and, if applicable, the optional external +5V and/or ±12V/±V power supply input to the Adapter.

a. Align pin 1 of J3 on the SCA with pin 1 of the Expansion Connector on the AIM 65 Master Module (component side up).

b. Carefully insert the Adapter into the Expansion Connector.

c. Press in firmly until all pins are securely seated.

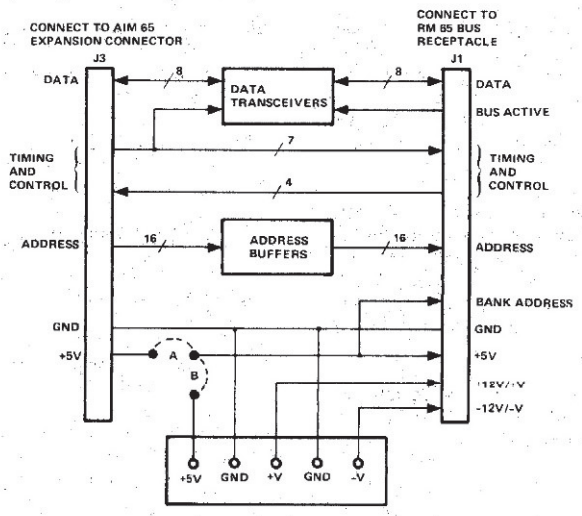
d. Install the RM 65 module into the J1 connector on the Adapter using installation procedures described in the documentation for the particular module. Ensure that Bank Select switches on the add-on module are positioned to Bank Select 0 or Bank Select Disable, as appropriate.

e. Turn on power to the AIM 65 and, if applicable, turn on external +5 Vdc and/or ±12V/±V to the SCA module.

REMOVAL

a. Turn off power to the AIM 65 and if applicable, to the external ±12V/±V power supplies.

b. Pull the Adapter straight back while moving it slightly from side to side to disconnect it from the AIM 65 Expansion Connector.



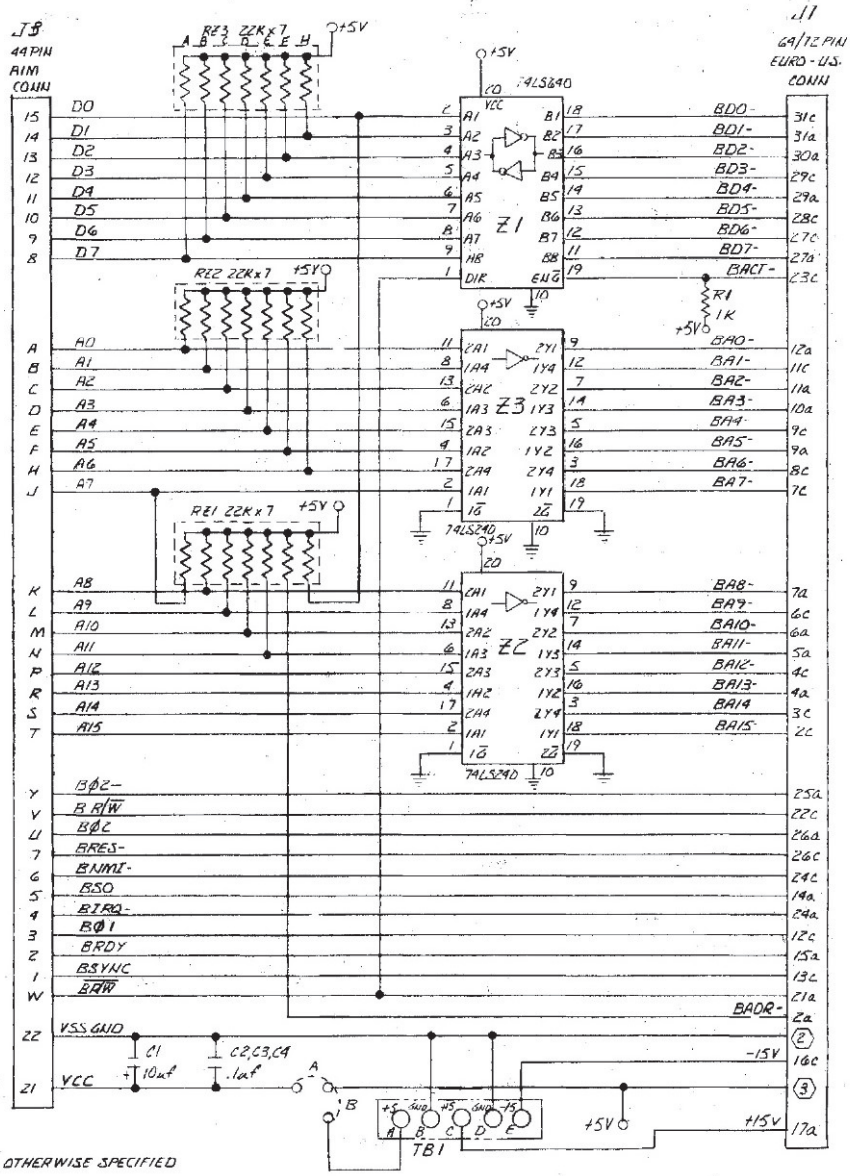
Single Card Adapter Block Diagram

RM 65 Bus Pin Assignments

Bottom (Solder Side)				Top (Component Side)			
Pin	Signal Mnemonic	Signal Name	I/O	Pin	Signal Mnemonic	Signal Name	I/O
1a	GND	Ground		1c	+5V	+5 Vdc	
2a	BADR/	Buffered Bank Address	O	2c	BA15/	Buffered Address Bit 15	O
3a	GND	Ground		3c	BA14/	Buffered Address Bit 14	O
4a	BA13/	Buffered Address Bit 13	O	4c	BA12/	Buffered Address Bit 12	O
5a	BA11/	Buffered Address Bit 11	O	5c	GND	Ground	
6a	BA10/	Buffered Address Bit 10	O	6c	BA9/	Buffered Address Bit 9	O
7a	BA8/	Buffered Address Bit 8	O	7c	BA7/	Buffered Address Bit 7	O
8a	GND	Ground		8c	BA6/	Buffered Address Bit 6	O
9a	BA5/	Buffered Address Bit 5	O	9c	BA4/	Buffered Address Bit 4	O
10a	BA3/	Buffered Address Bit 3	O	10c	GND	Ground	
11a	BA2/	Buffered Address Bit 2	O	11c	BA1/	Buffered Address Bit 1	O
12a	BA0/	Buffered Address Bit 0	O	12c	Bϕ1	Buffered Phase 1 Clock	O
13a	GND	Ground		13c	BSYNC	Buffered Sync	O
14a	BSO	Buffered Set Overflow	I	14c	BDRQ1/	*Buffered DMA Request 1	
15a	BRDY	Buffered Ready	I	15c	GND	Ground	
16a		*User Spare 1		16c	−12V/−V	−12 Vdc/−V	
17a	+12V/+V	+12 Vdc/+V		17c		*User Spare 2	
18a	GND	Ground Line		18c	BFLT/	*Buffered Bus Float	I
19a	BDMT/	*Buffered DMA Terminate		19c	Bϕ0	*Buffered External Phase 0 Clock	
20a		*User Spare 3		20c	GND	Ground	
21a	BR/$\overline{W}$/	Buffered Read/Write "Not"	O	21c	BDRQ2/	*Buffered DMA Request 2	
22a		*System Spare		22c	BR/$\overline{W}$	Buffered Read/Write	O
23a	GND	Ground		23c	BACT/	Buffered Bus Active	I
24a	BIRQ/	Buffered Interrupt Request	I	24c	BNMI/	Buffered Non-Maskable Interrupt	I
25a	Bϕ2/	Buffered Phase 2 "Not" Clock	O	25c	GND	Ground	
26a	Bϕ2	Buffered Phase 2 Clock	O	26c	BRES/	Buffered Reset	O
27a	BD7/	Buffered Data Bit 7	I/O	27c	BD6/	Buffered Data Bit 6	I/O
28a	GND	Ground		28c	BD5/	Buffered Data Bit 5	I/O
29a	BD4/	Buffered Data Bit 4	I/O	29c	BD3/	Buffered Data Bit 3	I/O
30a	BD2/	Buffered Data Bit 2	I/O	30c	GND	Ground	
31a	BD1/	Buffered Data Bit 1	I/O	31c	BD0/	Buffered Data Bit 0	I/O
32a	+5V	+5 Vdc		32c	GND	Ground	

Note:
*Not used on this module.

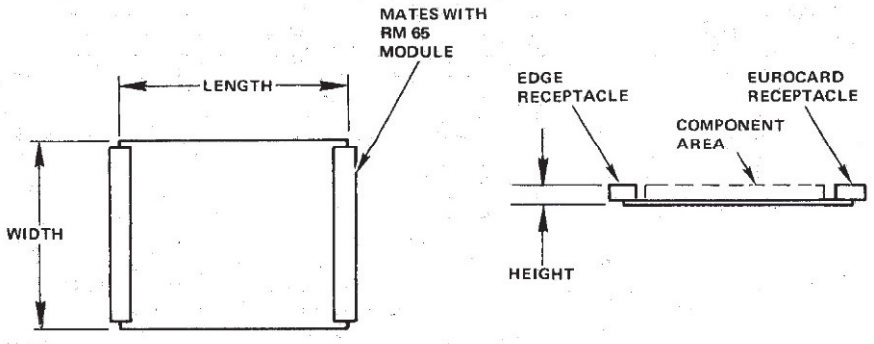
SINGLE CARD ADAPTER SCHEMATIC



AIM 65 Expansion Connector Pin Assignments

Top (Component Side)				Bottom (Solder Side)			
Pin	Signal Mnemonic	Signal Name	Input/ Output	Pin	Signal Mnemonic	Signal Name	Input/ Output
1	SYNC	Sync	I	A	A0	Address Bit 0	I
2	RDY	Ready	O	B	A1	Address Bit 1	I
3	ø1	Phase 1 Clock	I	C	A2	Address Bit 2	I
4	$\overline{IRQ}$	Interrupt Request	O	D	A3	Address Bit 3	I
5	S.O.	Set Overflow	O	E	A4	Address Bit 4	I
6	$\overline{NMI}$	Non-Maskable Interrupt	O	F	A5	Address Bit 5	I
7	$\overline{RES}$	Reset	I	H	A6	Address Bit 6	I
8	D7	Data Bit 7	I/O	J	A7	Address Bit 7	I
9	D6	Data Bit 6	I/O	K	A8	Address Bit 8	I
10	D5	Data Bit 5	I/O	L	A9	Address Bit 9	I
11	D4	Data Bit 4	I/O	M	A10	Address Bit 10	I
12	D3	Data Bit 3	I/O	N	A11	Address Bit 11	I
13	D2	Data Bit 2	I/O	P	A12	Address Bit 12	I
14	D1	Data Bit 1	I/O	R	A13	Address Bit 13	I
15	D0	Data Bit 0	I/O	S	A14	Address Bit 14	I
16	−12V	*−12 Vdc		T	A15	Address Bit 15	I
17	+12V	*+12 Vdc		U	SYS ø2	System Phase 2 Clock	I
18	$\overline{CS8}$	*Chip Select 8		V	SYS R/$\overline{W}$	System Read/Write	I
19	$\overline{CS9}$	*Chip Select 9		W	R/$\overline{W}$	Read/Write "Not"	I
20	$\overline{CSA}$	Chip Select A		X	*TEST	Test	
21	+5V	+5 Vdc	I	Y	ø2	Phase 2 Clock "Not"	I
22	GND	Ground		Z	*RAM R/$\overline{W}$	RAM Read/Write	

Note:
*Not used on this module.



Module Dimensions

SPECIFICATIONS

Parameter	Value
Dimensions (1, 2, 3)	
Width	4.4 in. (111 mm)
Length	3.7 in. (93 mm)
Height	0.56 in. (14 mm)
Weight	3.0 oz. (90 g)
Environment	
Operating Temperature	0°C to 70°C
Storage Temperature	−40°C to +85°C
Relative Humidity	0% to 85% (without condensation)
Power	+5V ±5% 110 mA (0.55W)—Typical 200 mA (1.00W)—Maximum
Interface	
AIM 65 Expansion Connector	22/44—edge receptacle (0.156 in. centers)
RM 65 Bus	64-pin receptacle (0.100 centers) per DIN 41612 (Row b is not installed)

Notes:
1. Height includes the maximum values for component height above the board surface (0.4 in. for populated modules), printed circuit board thickness (0.062 in.), and pin extension through the bottom of the module (0.1 in.).
2. Length does not include extensions beyond the edge of the module due to connectors.
3. Dimensions conform to DIN 41612.