RACK, PSU AND BACKPLANE

UNIT DESCRIPTION

CONTENTS

TABLES

FIGURES

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1. INTRODUCTION

1.1 GENERAL

The main Acorn System 5 components, printed circuit boards, disc drives, and power supply unit are mounted within a Rack Assembly. This rack is suitable for 19 in. rack mounting or as a free standing unit when housed in an optional instrument case (Figure 1).

The Acorn Bus is carried on two printed circuit backplanes with additional hard wired connections where necessary. With the exception of the mains lead (round cable) and backplane power connections, all other internal inter-unit wiring uses ribbon cable.

1.2 LEADING PARTICULARS

Size : Rack	: 480mm (W) x 177mm (H) x 240mm (D)
Cabinet	: 490mm (W) x 214mm (H) x 350mm (D)
Weight	: 16kg (approx.) fitted with one drive
Power Requirements	: 230V, 50/60Hz at 0,6A, OR 115V, 50/60Hz at 1.A

2. RACK ASSEMBLY

Figures 1 and 2 show the basic System 5 configuration with two floppy disc drives fitted.

The Rack Assembly consists of a front panel and two sideplates between which are fitted the upper and lower disc drive mounting plates and the card frame. A third sideplate provides a common endplate for the disc drive housing and card frame.

A small panel, mounted below the card frame carries the mains ON/OFF switch,

In its basic form, the rack assembly is suitable for 19 in. rack mounting. Alternatively, it may be housed in an instrument case as a free standing unit. The case includes feet and ventilation louvres and two carrying handles attached to the front panel.

The card frame will accommodate up to ten Eurocard printed circuit boards (100mm x 160mm). Figure 1 shows the card positions for the basic units. The remaining card slots will accommodate up to six further Acorn Bus compatible boards.

The disc drive housing accommodates one or two disc drives and appropriate front panels are provided. It should be noted that if a single disc drive system is updated to a dual drive system, the appropriate front panel should be ordered at the same time as the disc drive.

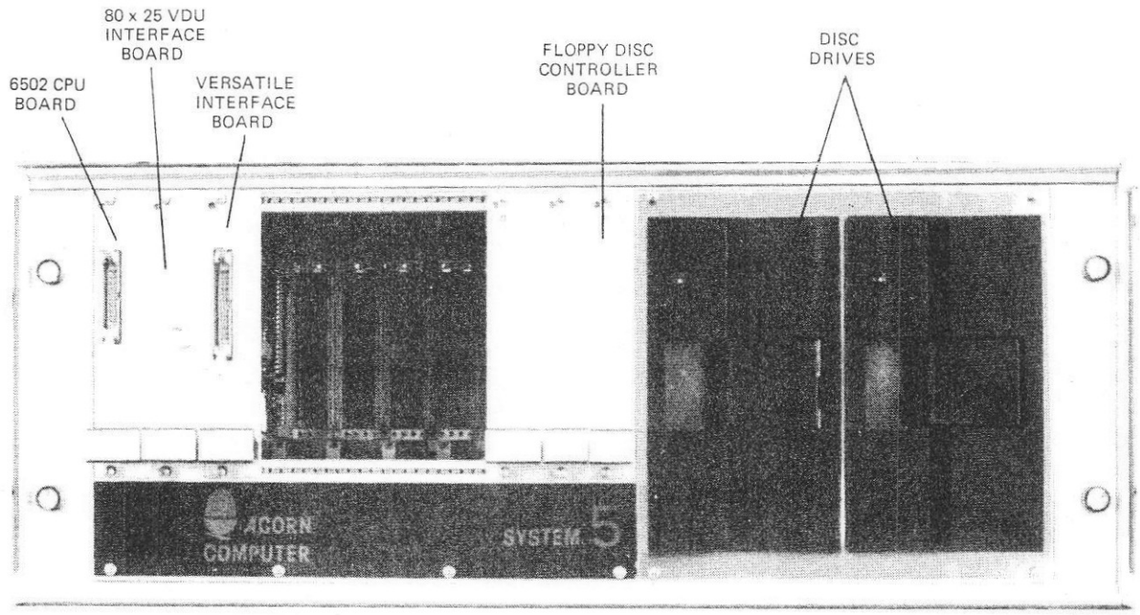

Figure 1. Front View

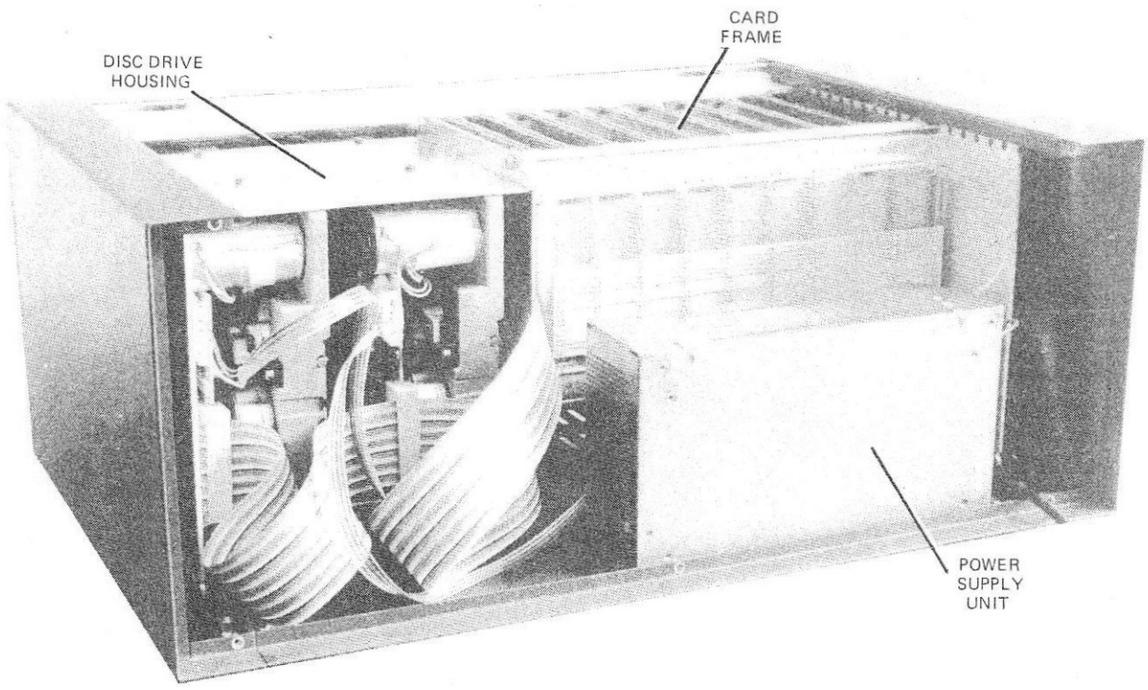

Figure 2. Rear View

3. POWER SUPPLY UNiT

Power for System 5 is provided by a type AC9231 Switch Mode Power Supply Unit. This unit is mounted behind the card frame and provides the following d.c. supplies:

— +5V at 6A
— -5V at 0.5A
— +12V at 2.5A
— -12V at 0.5A

The power supply unit will operate from mains supplies in the range 90V to 135V a.c. (115V a.c. nominal) or 180V to 270V a.c. (230V a.c. nominal) with a supply frequency in the range 47Hz to 400Hz (50/60Hz nominal). it has the following features:

- Hold-up time of 24ms typical in the event of a power failure.
- 0.1% typical line regulation.
- 0.2% typical load regulation.
- Open or short circuit loads can be tolerated for an indefinite period.

Table 1 gives the input/output connections for the power supply unit and Table 2 lists typical loads drawn.

PIN		SERVICE
A.C.	1	LINE
	2	NEUTRAL
D.C.	1	—
	2	KEY
	3/4	+12V
	5/6	+5V
	7/8/9	COMMON
	1Ø	+ve } 5V
	11	-ve }
	12	+ve } 12V
	13	-ve }

Table 1. Power Supply Unit Connections

UNIT	TYPICAL LOAD CURRENTS	
	+5V	+12V
6502A CPU	520mA	
32K DRAM	280mA	
FDC	150mA	
80 x 25 VDU	450mA	
KEYBOARD	100mA	
DISC DRIVES:		
OLIVETTI	750mA	1.15A
SHUGART	500mA	900mA
TANDON	600mA	900mA

Table 2. Typical Loads

4. BACKPLANE

The two backplane printed circuit boards provide the Acorn Bus connections to the ten card positions of the card frame.

The smaller backplane PCB carries the tracks for the B-side clock and interrupt signals.

The remaining B-side connections are hard wired between the ten edge connectors when necessary.

The large backplane PCB carries the printed circuit edge connectors and the tracks for the A-side connections.

The Acorn Bus connections are listed in Table 3.

PIN No.	SIDE A SIGNALS TO ALL BOARD POSITIONS	SIDE B – PINS MARKED ARE CONNECTED TO ALL BOARD POSITIONS										
		6502A CPU BOARD	32K DRAM BOARD	FDC BOARD	VERSA-TILE I/FACE BOARD	80 x 25 VDU I/FACE BOARD	TELE-TEXT VDU I/FACE BOARD	ICE BOARD	ADC BOARD	PROM PROG'R BOARD	ECONET I/FACE BOARD	8K RAM BOARD
1	+5V									+12V		
2	A15											
3	A14	PB7			PB7		PO					
4	NWDS	PB6			PB6		DE					
5	NRDS	PB5			PB5		NTLC					
6	NRST	PB4			PB4		NBCS					
7	A8	PB3			PB3		NDATA					
8	A7	PB2			PB2		DLIM					
9	A6	PB1			PB1							
10	A5	PBØ			PBØ							
11	A4	CB2			CB2							
12	A3	CB1			CB1							
13	A2	12MHz				12MHz						
14	A1	8MHz	8MHz									
15	AØ	6MHz										
16	D7	4MHz	4MHz	4MHz								
17	D6	3MHz										
18	D5	2MHz	2MHz			2MHz						
19	D4									+26V		
20	D3											
21	D2	1MHz	1MHz									
22	D1	NBGt										
23	DØ											
24	A13		NVMA		NVMA	NVMA		NVMA	NVMA	NVMA	NVMA	NVMA
25	A12	NBRq										
26	A11	MR										
27	A10											
28	A9	NIRQ			NIRQ			NIRQ	NIRQ		NIRQ	
29	Ø2	NNMI		NNMI	NNMI			NNMI				
30	R/NW	SYNC			NIRQ			SYNC				
31	NBLKØ											
32	0V	0V	0V									

Notes: All A-side connections are carried on the main backplane. PCB.
B-side connections B13 to B22, B28 and B29 are carried on the smaller backplane PCB.
B-side connections B1 to B12, B23 to B27 and B30 to B32 are hard wired if required by user,

Table 3. Acorn Bus Connections

5. PARTS LIST

5.1 MECHANICAL PARTS

ITEM	DESCRIPTION	VALUE	QTY	PART NO.
	Instrument case		1	48-8346E *
	KM6 Universal end plates	4U x 240mm	2	173-24151C*
	End plate angles		2	173-24149E *
	Extrusion, top, front	84E	1	173-12552K *
	Extrusion, bottom, front	84E	2	173-12551B *
	Extrusion, rear, top	84E	1	173-13018E *
	Extrusion, rear, bottom	84E	1	173-12701A*
	Location mouldings, front		2	173-12557F *
	Location mouldings, rear		1	173-12558C *
	Tapped strip	84E	3	173-12704C *
	Card guides	160mm	20	173-12553G *
	Front panels	5E x 3U	8	174-12903K *
	Front panels	4E x 3U	2	174-12902B *
	Card mounting brackets		10	173-12525B *
	Screws	M4 x 12	10	173-12529A*
	Screws	M2.5 x 6	20	173-12530B *
	Screws, front panel		7	107-12712 *
	Bushes		7	172-12707 *
	Divider plate		1	
	Drive fixing bracket (A)		1	
	Drive fixing bracket (B)		1	
	Drive front panel (single drive)		As Reqd	
	Drive front panel (dual drive)		As Reqd	
	Switch panel		1	
	Strain relief bush		1	HEXCO 1140
	Screws, Posidrive	M3 x 6	12	
	Washers, plain	M3	12	
	Washer, shakeproof	M3	1	
	Screws, Posidrive	M4 x 12	7	
	Washers, plain	M4	7	
	Nut	M4	7	

*Vero Part Nos.

5.2 ELECTRICAL PARTS

ITEM	DESCRIPTION	VALUE	QTY	PART NO.
	Backplane Assembly comprising:		1	100,028
	Backplane (1)		1	
	Backplane (2)		1	
	Sockets, 64-way		10	Straight DIN 41612
	110 Fast on tabs		2	
	Capacitor, ceramic disc	47n	1	
	Power supply unit		1	Aztec AC9231
	Mains warning label		1	RS556-159
	Mains cable		1	201,057
	PSU a.c. cable		1	201,056
	PSU d.c. cable		1	201,055
	Mains switch		1	Arrow 2600R21E
	Earth Lead		1	201.072