SAMBUS
EXPANSION BUS

The SAMBUS plugs into the SAM Coupe's rear expansion connector and allows upto four peripheral interfaces to be connected at the same time. It also has a battery back up real time clock which can be set and read by the Coupe. Using MasterDOS, files can be time and date stamped.

The SAMBUS buffers all the control signals of the SAM Coupe so that it can drive four interfaces such as Printer, 1 Mb, Voicebox etc.. It also has an output connector at the rear of the unit in the same way as the SAM so that another SAMBUS could be connected.

The SAMBUS has a real time clock chip (an OKI M6242B) which can be set and read by the Coupe using MasterDOS statements TIME and DATE. The clock chip is supported by a rechargeable battery which trickle charges while the Coupe is on and provides power for the clock while the Coupe is switched off.

MasterDOS is booted, it saves on disc with the file the time and date of saving. (existing files saved under SamDOS are still compatible although no date stamping is shown in the directory listing.

All interfaces connected will use up some of the available power from the Power Supply and some will be more hungry than others, It may be necessary to connect an external power supply to the SAMBUS.

PROGRAMMER'S NOTES
The OKI M6242B chip has 16 registers of four bits and they have the following parameters :-

Port	Description	Name	D3	D2	D1	DO	Value
239	1 Second register	S1	s8	s4	s2	s1	0 - 9
4335	10 Second register	S10	*	s40	s20	s10	0 - 5
8431	1 Minute register	M1	m8	m4	m2	m1	0 - 9
12527	10 Minute register	M10	*	m40	m20	m10	0 - 5
16623	1 Hour register	H1	h8	h4	h2	h1	0 - 9
20719	10 Hour register	H10	*	*	h20	h10	0 - 2
24815	1 Day register	D1	d8	d4	d2	d1	0 - 9
28911	10 Day register	D10	*	*	d20	d10	0 - 3
33007	1 Month register	MO1	mo8	mo4	mo2	mo1	0 - 9
37103	10 Month register	MO10	*	*	*	mo10	0 - 1
41199	1 Year register	Y1	y8	y4	y2	y1	0 - 9
45295	10 Year register	Y10	y80	y40	y20	y10	0 - 9
49391	Week day (0=Sunday)	W	*	w4	w2	w1	0 - 6

53487, 57583 and 61679 are control registers D, E, and F and should not be tampered wit

*** SAMBUS - A 4-SLOT EXPANSION INTERFACE FOR THE SAM COUPE ***

The SAMBUS plugs into the Coupe's rear expansion connector and allows up to four peripherals (printer interfaces, Voicebox, 1 Mb Memory Expansion etc) to be connected at the same time.

WARNING 1 - NEVER plug/unplug any device into an expansion connector while the Coupe is switched on. You may cause some damage the computer and almost certainly cause any loaded programs to "crash"

On board the SAMBUS is a real-time clock (an OKI M6242B chip) which can be set and read by the SAM Coupe by using the MasterDOS BASIC statements "TIME" and "DATE". (MasterDOS must be loaded first.) The clock has a long life battery installed, so that it will remember what the time is even after the SAM Coupe has been turned off. The battery re-charges itself while the the SAM Coupe is switched on. The "TIME" and "DATE" functions can be useful when MasterDOS saves files, as it supports a time/date stamp (in common with a PC Computer) on saved files. (Existing files saved under SAMDOS are still compatible, although no time stamp is shown for these files.)

All devices connected will use up some of the available power, and some will be more power-hungry than others. All future peripherals produced will carry a "Loading Factor" number which will be located near the device's serial number and prefixed by the letters "LF". This will allow you to estimate how much power a device is likely to consume. If the "Loading Factor" total is above 200 units for all the devices connected, an external 5v power supply will need to be plugged in to the SAMBUS via the external power connector. Phone SAMCO for details on this.

The following peripherals were designed before the SAMBUS was in production, and you should assume the following "Loading Factor" units for them.

External Drive/Parallel Printer Interface   15 LF units.

Parallel Printer/RS232 Comms Interface   20 LF units.

The Voicebox   15 LF units.

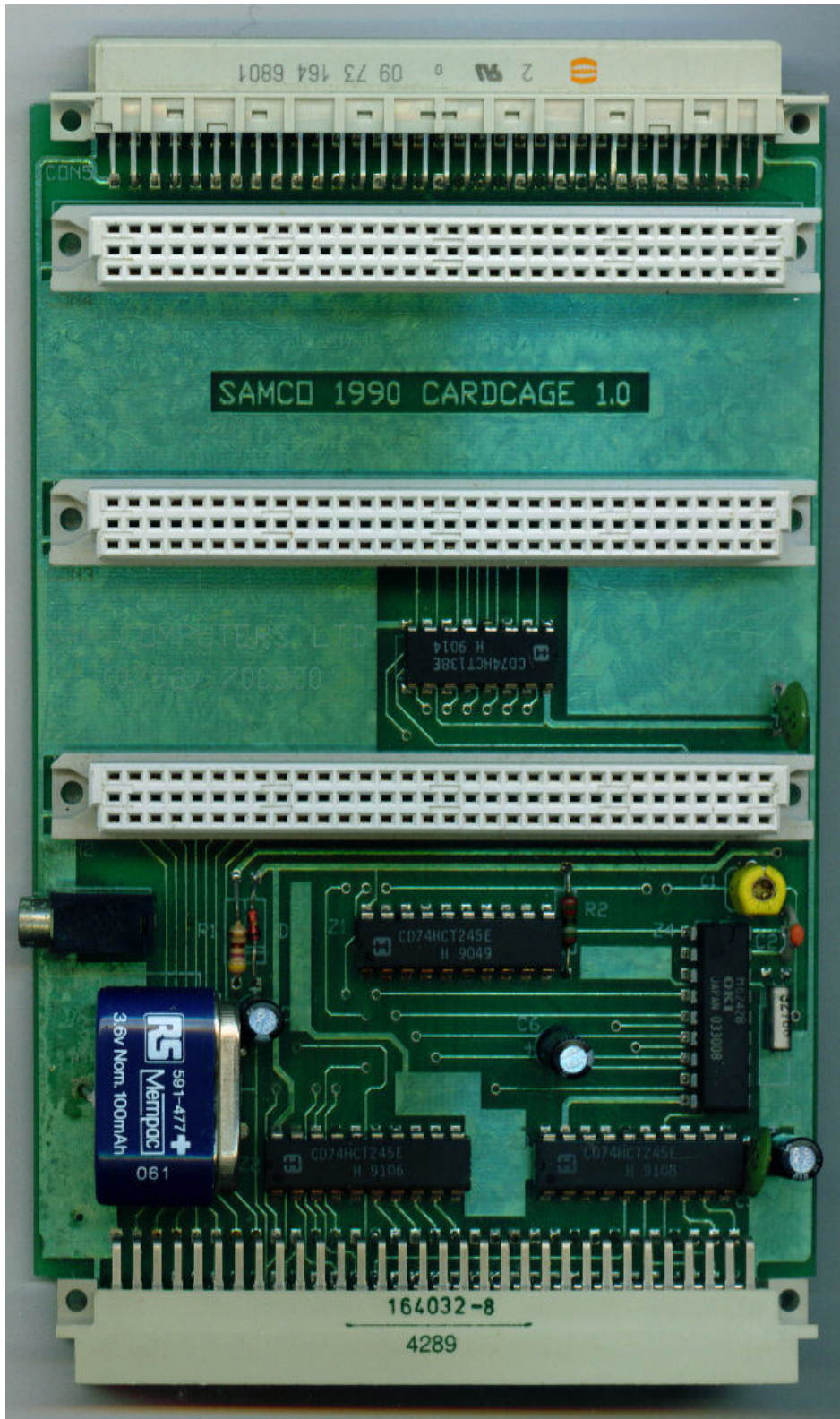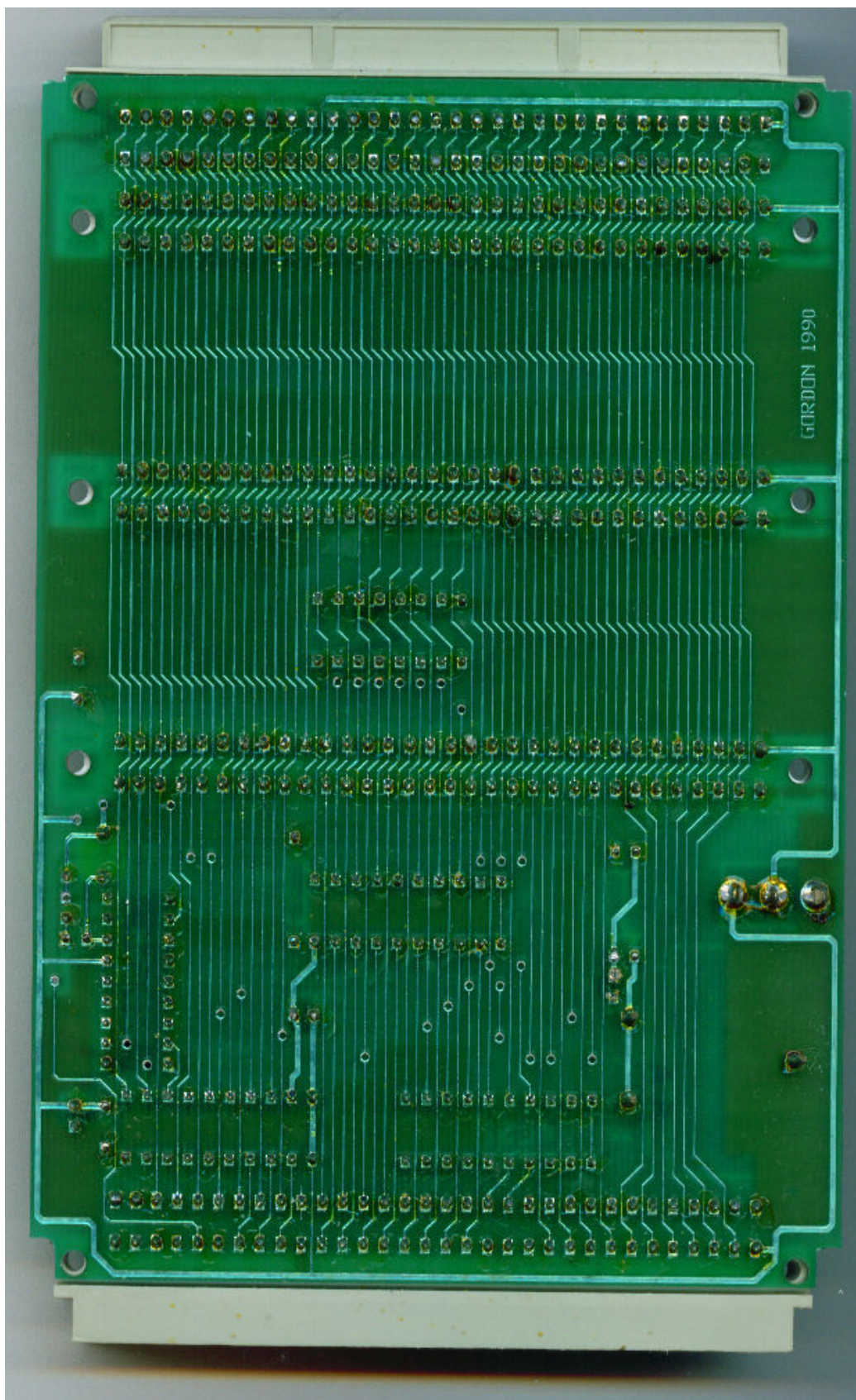In addition, you should add 50 LF units for each internal SAM disk drive fitted.

The following I/0 ports are used by the real-time clock. When
reading them, be sure to mask off the upper four bits by using
BAND 15.

```
    Port 239    Units   - Second register
    Port 4335    Tens   - Second register
    Port 8431   Units   - Minutes
    Port 12527   Tens   - Minutes
    Port 16623  Units   - Hour
    Port 20719   Tens   - Hour and PM/AM Bit
    Port 24815  Units   - Day
    Port 28911   Tens   - Day
    Port 33007  Units   - Month
    Port 37103   Tens   - Month
    Port 41199  Units   - Year
    Port 45295   Tens   - Year
    Port 49391 Day of the week
```
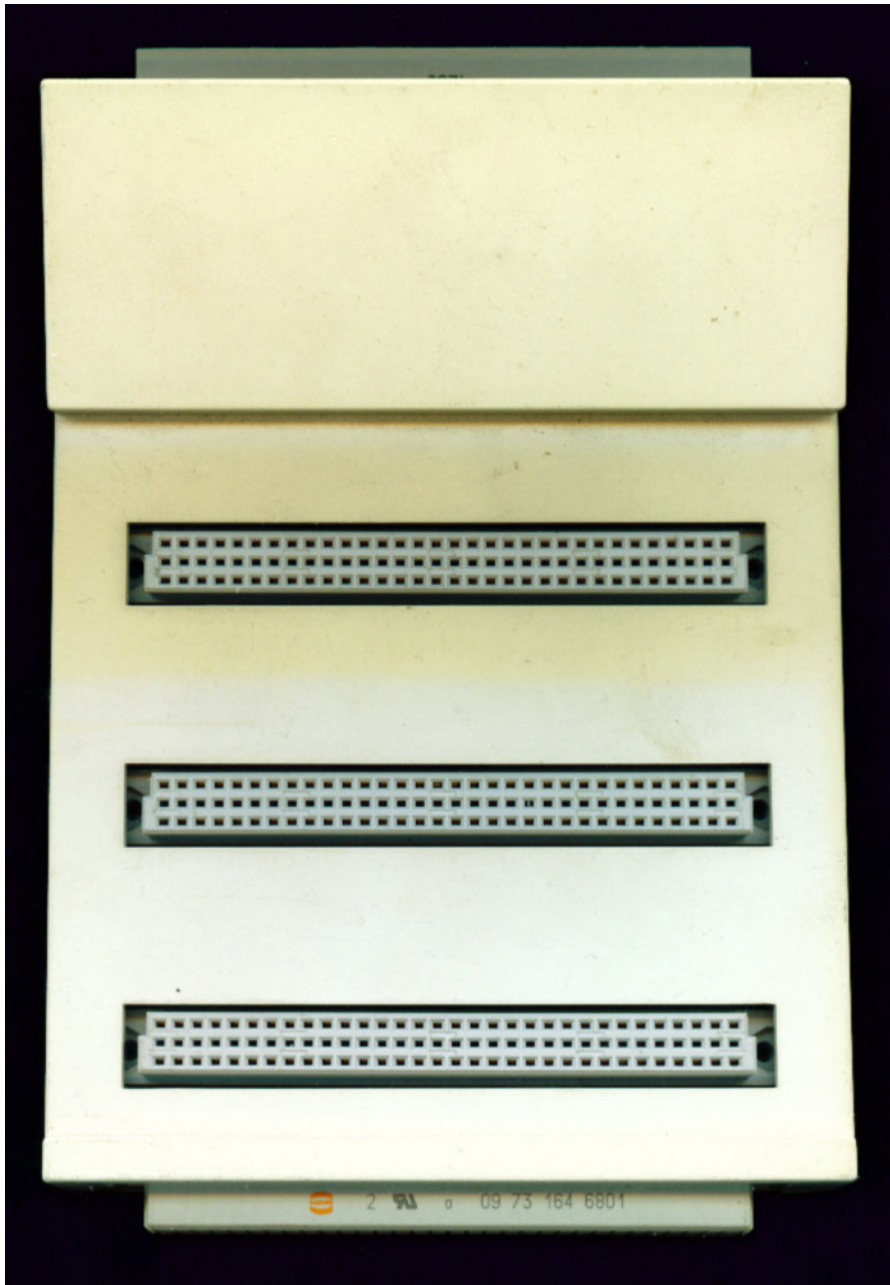
I hope you have fun and enjoy using your SAMBUS expansion
interface.

Circuit board details

The Sambus with its cloths on !

This pdf by Steve Parry-Thomas

16-December 2004

For Sam Users everywhere

www.samcoupe.org