

SAM Drive | World of SAM

 www.worldofsam.org/products/sam-drive

Description

The Coupé could support two 3.5" Ultrastim Citizen Double Density (U0DC-xxx) drives each with their own [WD-1770-02](#) disc controller board allowing both drives to operate independently.

Unformatted capacity 1Mbyte, when formatted with [Samdos](#) as double sided, 80 track per side, 10 sectors per track, to the IBM 3740 standard gives 800kB with 776kB usable after directory space and next sector data is subtracted.

Having the drive controller board within the slot-in drive unit meant that the floppy drive connectors could be used for other devices, most notably the [ATOM](#) IDE interface and (with [Internal PCB](#) modification) the Sam Internal Parallel Interface [SIPI](#).

When the rights passed to [West Coast Computers](#) the Citizen drives were no longer available so modified PC drives were used instead, requiring a modified drive controller board and a large cut out of the front of a blanking plate. They also sold kits for additional drives made in this fashion called [Project 94A](#).

With age brings maintenance requirements which are documented on the [Drive Issues](#) page.

Drive Connectors:

Connections to the two drives controllers are made via two 32-pin [Euroconnectors](#), with rows A and B connected. Drive 1 (DS0) is on the left of the machine and drive 2 (DS1) on the right. A list of signals available at these sockets are shown below.

PIN	SIGNAL	PIN	SIGNAL
1A	0 VOLTS	1B	WR
2A	0 VOLTS	2B	A0
3A	0 VOLTS	3B	A1
4A	0 VOLTS	4B	D0
5A	0 VOLTS	5B	D1
6A	0 VOLTS	6B	D2
7A	0 VOLTS	7B	D3
8A	0 VOLTS	8B	D4

PIN	SIGNAL	PIN	SIGNAL
9A	0 VOLTS	9B	D5
10A	0 VOLTS	10B	D6
11A	5 VOLTS	11B	D7
12A	5 VOLTS	12B	8 MHz
13A	5 VOLTS	13B	RST
14A	5 VOLTS	14B	No connection
15A	5 VOLTS	15B	A2
16A	5 VOLTS	16B	DS0 (wired to DS0 in left hand bay, DS1 in right hand bay)

Citizen Drive Pin out:

The U0DC drives have no separate power connector so use a custom 26-way connection to the drive controller board to pass 5V to the drive.

PIN	SIGNAL	PIN	SIGNAL
1	5 Volts	14	Step
2	Index	15	Ground
3	5 Volts	16	Write Data
4	Drive Select 0	17	Ground
5	5 Volts	18	Write Gate
6	Not connected	19	Ground
7	Drive Select 1	20	Track 0
8	Ready	21	Ground
9	Not connected	22	Write Protect
10	Motor on	23	Ground

PIN	SIGNAL	PIN	SIGNAL
11	Not connected	24	Read Data
12	Direction	25	Ground
13	Ground	26	Side 1 Select

Drive Issues:

See the [Drive Issues](#) page.

Instructions

Presumably, three editions of the user's guide were published. The 3rd edition can be found as a PDF Manual Scan at www.samcoupe-pro-dos.co.uk

Reviews

Your Sinclair [Rage Hard](#), (Recovered) courtesy of the YS Rock 'n' Roll Years YS52

Following fast on the heels of last month's SAM Coupe review, here comes the SAM disk drive and DOS; Sean Kelly gets out his trusty screwdriver and has a good poke.

The SAM disk drive is the first chunk of extra hardware to arrive for the Coupe, and as such helps give the computer a degree of sophistication not usually associated with things like the Speccy. Anyone who's used the drives on Atari STs, Amigas and the like will know what a boon a good, modern internal drive can be, and it should be exactly the same with the SAM. The difference is that these drives aren't actually an integral part of the computer at all, but very clever external fittings that only look as if they've been attached to the Coupe for life! They come separately, which means that you can buy the basic computer which loads games and other programs through an external tape deck (as you do with most Speccies) until you're feeling flush enough to splash out on a disk drive or two. Happily, MGT has made the units impressively slim and stuck two purpose-built holes in the front of the computer casing, so these extra add-ons slot in neatly and unobtrusively.

Fitting The Bits

Much to my surprise, actually attaching the drive is dead easy. Even those with as little computer assembly experience as me (ie zilch) should find it fairly straightforward. All you need to do is remove the little plastic cover on the front of the Coupe and shove the disk drive into the hole until it locks. You then turn the SAM upsidedown and bung a couple of screws in underneath to hold it in place.

The instructions are more than adequate (it literally took about three minutes) and the end results look surprisingly good. The SAM still seems a bit like a breeze ' . block with a keyboard, but now it's a breeze block with a keyboard and a couple of nifty blue slot things on the front. Infinitely preferable. It adds nothing to the size of the computer, and with two drives fitted is a lot less awkward and space-consuming than either the ST or Amiga with a second drive (which comes as a bulky external unit). Of course, that's not really of much relevance to most people, but it does indicate how well thought-out the project is.

Like the 16-bit computers, the SAM uses the (now pretty common) 3.5 inch disks, which when formatted will give a total of 780K per disk - enough room to back up 16 48K games onto one disk! With the Coupe disk drive you not only get to keep your back collection of Speccy games but you get to load them a lot faster and easier too.

DOSsing About

Next you need to load in the DOS (Disk Operating System) disk. Unfortunately, at the moment there's a slight prob with the DOS and the ROM of the Coupe, which results in the computer failing to recognise the DOS and throwing up an Error message on the screen. The manuals on the first batch of computers shipped out contain an extra bit of paper explaining the problem and giving simple instructions for fixing it, but later models will come with a slightly rewritten DOS so everything should work properly.

Basically, when the Error screen does show you simply need to call up the DOS by using the basic command CALL 229385. Unfortunately, although no functions are lost, all the pretty front-end intro stuff (like a decent menu display and so forth) seems to have gone missing, so the presentation is a bit basic and functional. In fact, it's much like the PC's MS-DOS in presentation and operation (if anyone's familiar with that). Commands are typed in, so there's no 16-bit-style mouse-driven icon laziness here (although a mouse does come later). The user manual gives an adequate guide to loading, copying and saving with the drive, but it certainly doesn't address itself to the more technical aspects of disk use.

Most of the commands are straightforward enough though, but I do have one quibble. The wildcard function is, if anything, a little too powerful. For example, a command like ERASE "N" will delete all files beginning with the letter N, which makes it a little easy to wipe away vital files without thinking. It could be argued that deleting unnecessary files can be avoided by simply being more specific in the deleting process (for example by typing ERASE "NORMAN" or whatever) but I'm sure that most computer users, being such lazy oiks, tend to use the shorter (but more dangerous) deleting procedure. I certainly did, until I lost a (luckily non-important) file by mistake.

Dumping Ground

Like the previous MGT Speccy drives, the Sam Coupe has a function which allows Speccy 48K games to be dumped onto disk in a fairly straight-forward manner. Unfortunately, I couldn't get this function to operate on our prerelease version although I

am assured by MGT that the one you buy in the shops will work fine. The Coupe drive can also read disks which were written on the other MGT drives, so those owning a DISCIPLE or Plus D drive will be able to use their disks with the Coupe in the Speccy emulation mode. Unfortunately, these disks can only be read - they can't be written to or altered in any way. Presumably, though, those splashing out on two drives will be able to copy them onto a Coupe format disk.

And The Verdict?

The SAM disk drive will retail at £89.95, which will give the two a combined price of just under £260. Considering you could pick up a basic ST for around the same amount, suddenly the SAM doesn't look such great value anymore. Still, there's no reason why you should have to buy them together. You could quite easily soldier on with your Speccy cassette deck until such time as you're feeling a little more flush (or a birthday comes along, whichever is sooner). It's almost inevitable that once you've got your Coupe you'll want to pick up a drive sooner or later, and we can see no conceivable reason why not - it's a neat, slim unit, with bags of potential, and the speed with which it loads games, compared to the Speccy, is truly a joy to behold. Bravo

Trivia

There is a bug that can cause disc corruption if a disc is left in the drive and the reset button pressed, see [Hardware Bugs](#)