

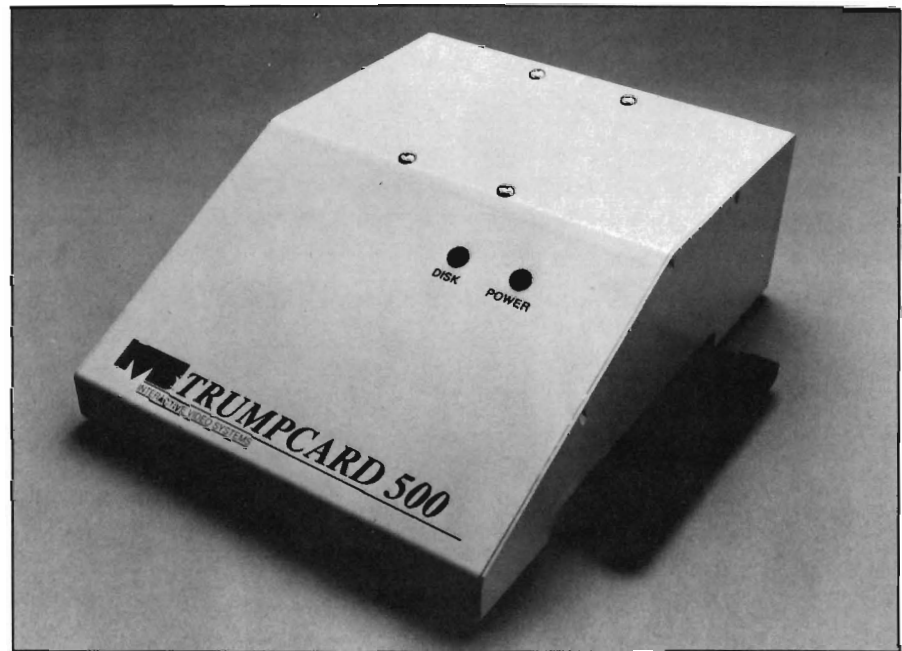
Trumpcard 500

A New Autobooting Hard Drive Chassis for the A500

by Steve Dock

The Amiga 500 is a deceptive personal computer. The all-in-one tan case with its built-in keyboard looks like a member of the C64 or Atari 400 family. These famous game machines also used the all-in-one approach to reduce costs. The similarity ends when you consider that 512 KBytes of memory and a 32 Bit 68000 are housed under the "hood" of the A500. Hundreds of thousands agree that this particular Amiga gives the most bang for the buck, and have purchased an A500 during the last two years. Most North American A500 owners also purchase the A501 optional RAM expansion to bring their system up to a full 1 Mega-Byte of RAM. A 1 MEG A500 is in many ways the equal of a stock A2000 and will often be used for graphics, word processing, and video applications.

Where the 500 and 2000 differ, is in expansion beyond the A501 memory unit. The 2000 has a chassis and power supply which support the addition of internal disk drives, memory boards, video boards, and even IBM style expansion boards. The A500 has a connector for external floppy disk drives, and an expansion bus similar to that of the original A1000. The A500 uses an 86 pin bus which provides full



The new Trumpcard 500 chassis can support a wide range of 3 1/2" hard drive units

access to the system mother board and can be used to add memory or a hard-disk. The peripheral product life-cycle of A500 expansion units reminds me of the cycle of the A1000 (eg. slow and few). While harddrives and hard-cards for the A2000 were developed rapidly and new models continue to be introduced almost every month, hard-drives for the A500 have been slow to arrive.

Therefore, we were very happy to receive one of the first Trumpcard 500 units for review. The Trumpcard is produced by Interactive Video Sys-

tems of La Mirada, California. IVS introduced its first harddisk product at the AmiExpo LosAngeles, in October 1988. The Trumpcard is an autobooting A2000 expansion card which provides a SCSI controller and a full set of features at a bargain price. The same autobooting controller is the basis of the 500 product with the necessary chassis and bus connector added.

The Trumpcard 500 chassis is a tan metal box about 7 inches wide, 9 inches long and 3 inches tall. The front two-thirds are angled to almost match
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Trump 500 (continued from previous page)

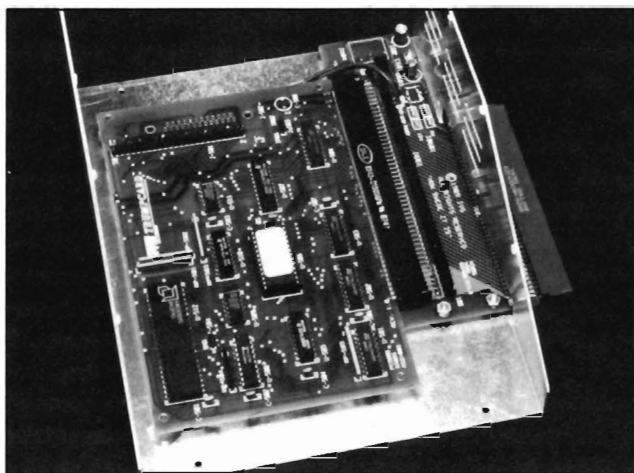
the slope of the 500 keyboard. Two lights are mounted on the front panel to inform you of power status and disk activity. The standard Trumpcard 500 draws its power from the 500 expansion bus, but an optional external power supply can be ordered. Inside is a circuit board which converts the 86 pin bus to the newer 100 Pin Zorro standard, and provides two 100 pin connections. The Trumpcard SCSI controller is plugged into one of these connectors. A 50 pin SCSI ribbon cable runs to the harddrive, which is mounted transversely and attached to the top of the chassis.

Installation is a two part process; hardware then software. First remove the plastic bus cover at the left side of the 500, then carefully align the harddrive unit expansion connector. The Trumpcard documentation suggests that you start with one end, then rotate the harddrive to a full connection. A little pressure will complete the installation. While this is an easy process to complete, you must take care not to lift the combined 500-Trumpcard, since the bus connector is the only support provided and it is not meant to take that kind of strain.

Now turn on the 500 and insert the Trumpcard Boot Disk at the Workbench prompt. (This disk contains everything you need to initialize your harddrive, so be sure to make a backup before you begin to use it). The start-up-sequence of the Boot Disk will ask you if you want to "auto-install" your harddrive. If you respond "yes" the TCUtils program will be loaded and a 7 point checklist will appear onscreen. The checklist is well documented in the booklet-style instruction manual and includes on-screen help for each section. The Trumpcard is a SCSI con-

troller and therefore can perform the first item on the checklist automatically. SCSI harddrives come from the factory with certain information preset. If your drive is one of those included on the TCUtils disk you can breeze through Drive Select to Low Level Format. Before any harddrive can be used, it must be electronically marked and divided into sectors. A brand-new drive must go through this process twice, once for the SCSI controller, once for AmigaDos. The Low Level

An internal view shows the Trumpcard



SCSI format simply requires a click of the mouse to begin. (This screen, like several others, protects you from erasing any existing harddrive data by requiring three different clicks on CONTINUE.) The next item is the optional "Certify Drive" screen. I recommend that you don't skip this step but spend the extra time required. You can choose a variety of destructive or non-destructive tests to ensure that there are no media defects on the drive before you load up your programs and data.

Next you will create a mountlist entry for your first partition. Most users will use the DH0: name for their harddrive but you can type in any valid AmigaDos device name. Values for beginning and ending cylinder will be

filled in for the first partition, but you need to write down the ending cylinder value for use in other partitions. Item 5 on the checklist is Mount the device. Item 6 is AmigaDos format. Here you give a name to your Partition like "Hard Drive". The AmigaDos format will take some time, 10 to 20 minutes depending on the size of your drive. Finally, TCUtils will write setup information to the drive to allow it to autoboot.

With all items checked you choose EXIT and TCUtils. You will be prompted for an original Workbench which will be copied to the harddisk. This will finish the installation process. Now power off your 500 and restart. Assuming that your A500 has the 1.3 Kickstart in ROM, the Trumpcard 500 will autoboot and automount presenting the Workbench screen in a few seconds. (The default ICON for the TrumpCard partition is an eye-catching image of a playing card). You can now begin enjoying the benefits of a harddrive equipped Amiga.

The installation software has provision for creating multiple partitions by repeating steps 4, 5 and 6 and remembering to record the ending cylinder values. While functional, this approach is not as user-friendly as some other installation software we have used. TCUtils also produces a small BOOT partition on your harddisk which does not use the fast file system. A purist might complain about this, but Commodore's own 2090A autoboot process also requires a non FFS partition. These comments aside, TCUtils does the job and produces the desired result, an autobooting harddrive.

IVS included a 100 MegaByte Connor CP3100 harddrive with our review
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unit. Of course, the Trumpcard can support any of the popular SCSI drives, such as the Seagate 30 and Quantum 40/80 MB. The 100 MB Connor is a top of the line unit rated at 25 millisecond average access time, and it is certainly one the quietest SCSI drives I have used in quite some time. The power-up whine is there, but barely noticeable. When copying from one partition to another, I expect to hear a variety of clicks and whirrs, but the Connor remained silent. The TrumpCard-Connor combination works well with a wide variety of software and disk utilities, including Quarterback and DiskX, so compatibility is good. Even no there is no internal fan built into the unit, ongoing continuous test for periods of 12 hours or more produced some heat build-up, but no difficulties were encountered (such as heat lock-up).

To create a performance gauge with which to measure the Trump/Conner combination, I performed a variety of tests and have compared them to floppy drive speeds. As you would expect, there is a great distance between Trumpcard-Connor and a floppy drive (as would any good hard drive demonstrate). The real-world tests of loading and copying show that the IVS unit does in-fact provide high value/performance ratio.

My impressions of the Trumpcard 500 are positive. The documentation is adequate, the unit is well constructed, the software is functional and straight-forward. My only concerns are the size of the expansion box itself and provision for further expansion. With the Trumpcard installed, the A500 will not fit into most

computer desks. When you allow for inserting a disk into DF0: you need to have about 32" of linear desk space. Also, the unsupported nature of the bus connection means that you must take care when moving the 500 to connect a joystick or light-gun. IVS sells this chassis without the Trumpcard controller as a two slot expansion, so I assume

that a second Zorro connector can be added and used for memory expansion. Since the Trumpcard has no provision for passing the 86 pin bus, this type of internal expansion would be a necessity.

Undoubtedly, one of the concerns for this unit will be the fact that it runs off the A500 power supply in its default configuration. Once, again, during my testing over extended periods of time with heavy loading I encountered no difficulty. However, depending on your A500 peripheral configuration, you may want to consider the purchase of the separate power supply for the Trumpcard chassis, which is available through IVS. A DIN connector has been provided at the rear of the chassis for this purpose.

If we assume that most 500's are used primarily for game playing, then adding a harddrive is of little benefit. Unfortunately, many producers of Amiga games still depend on disk based copy protection which prevents installation on a harddrive.

With its price at \$269.95 for everything but the harddisk, the TrumpCard 500 offers a high value which should encourage more 500 users to add a harddrive to their system.

Trumpcard 500 \$269.95
Chassis with Trumpcard
Chassis alone \$69.95
Separate Power Supply:
\$60.00 - \$70.00

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Performance Tests - Single Task Running

	Connor CP3100	Floppy Disk
Copies:		
100 K File to RAM:	1.5 Sec	10 Sec
10 9K Files to RAM:	2 Sec	16 Sec
200 Files, 4000 K Partition to Partition	115 Sec	n/a
DIR:		
197 Files	12 Sec	73 Sec
LIST:		
197 Files	18 Sec	96 Sec
Load Excellence!		
350 K	6 Sec	28 Sec

Results of DiskPerf- Single Task Running

	CP3100	Floppy Disk
File create	17 files/sec,	0 files/sec
File delete	33 files/sec	1 files/sec
Directory Scan:	106 entries/sec	44 ent/sec
Seek/read test:	96 seek/reads/sec	19 seek/reads/sec
Read / Write Speed:		
Buffer 8192 bytes		
READ	238312 byte/sec	12249 byte/sec
Write	154202 byte/sec	5050 byte/sec
Buffer 32768 bytes		
READ	327680 byte/sec	12365 byte/sec
Write	201649 byte/sec	5060 byte/sec