ELBOX FAST ATA-2/EIDE
CONTROLLER FOR A1200
& ALLEGRO CDFS

USER'S GUIDE
v 2.4

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PREFACE

Thank you for purchasing the FAST ATA-2/EIDE Controller. Please read the manual carefully before the installation.

CONTENTS

When you receive the FAST ATA-2/EIDE Controller, please check the contents of the package. Ensure that the following items are present before fitting the hardware and installing the software:

- ***FAST ATA-2/EIDE Controller (two boards connected with a ribbon)***
- ***FastEIDE floppy disk***
- ***Two snap-on clamps for securing the controller in place***
- ***The manual***

SYSTEM REQUIREMENTS

Minimum configuration:

- ***Amiga 1200***
- ***Hard disk drive***

Recommended configuration:

- ***Amiga 1200 Tower***
- ***Hard disk drive***
- ***4 MB or more RAM installed on an expansion board or on a turbo card***

THE FAST ATA-2/EIDE CONTROLLER IDEA

In recent times, the extremely dynamic progress in the mass production technology of data storage materials has resulted in a huge increase of their capacity and speed. It is especially noticed with the devices which make use of the FAST ATA-2/EIDE standard of communication with computers.

Enhanced IDE is at present the most common standard controller for devices like hard drives, CD-ROM drives, CD-RW drives, DVD drives, etc.

The Amiga 1200 has a built-in hard disk controller in the IDE standard. However, only the PIO 0 mode of operation has been implemented in the Amiga 1200, which is the slowest of all PIO modes with a maximum transfer rate of about 3 MB/s.

The FAST ATA-2/EIDE Controller idea has been based upon the assumption to exploit completely the currently produced devices in the FAST ATA-2/EIDE standard with their increased speed and capacity. The aim of this solution is to adapt the existing Amiga computer systems to the new, many times more effective devices, while retaining full compatibility with the existing software and hardware installed in the system.

The FAST ATA-2/EIDE Controller has been designed to fit inside the Amiga 1200 in its standard casing or in any Tower-type casing. The controller works with two EIDE ports, which can accommodate up to four devices. Apart from the PIO 0 standard, necessary for booting up the Amiga computer from a hard disk and for accepting the oldest types of devices, the card also provides for fast PIO 3 and PIO 4 modes.

AllegroCDFS

- AllegroCDFS is the fastest Amiga CD File System.
- The first Amiga file system to support UDF (the Video DVD format).
- Acces to: ISO 9660 level 1, 2, 3; Joliet (Windows 95/98 long name) level 1, 2, 3; RockRidge (with Amiga Extensions); CDDA; UDF (Video DVD);
- Supports: Amiga protection bits; Multisession; SCSI and ATAPI devices (CD-ROM; CD-R; CD-RW, DVD); direct audio grabbing from standard audio CDs.

THE FAST ATA-2/EIDE CONTROLLER FEATURES

The FAST ATA-2/EIDE Controller with its many features represents the highest technology controller in its category. The following list describes some of these features:

Fast transfer rate of up to 16.6 MB/s

The FAST ATA-2/EIDE Controller with its maximum transfer rate of 16.6 MB/s in the PIO 4 mode offers a huge capacity reserve for fast mass storage devices, especially for fast hard drives. Therefore, applications may run much faster if they can count on fast access to large data files.

Support of ATAPI standard devices

The FAST ATA-2/EIDE Controller implements the ATAPI standard as well, for use with devices like CD-ROM drives, DVD drives, etc. This enables the connection of ATAPI-standard devices to the Amiga with no need for the installation of additional software.

Two buffered and terminated EIDE ports

The controller operates with two EIDE ports, which enable installation of up to four IDE/EIDE/ATAPI devices. Both controller ports are fully buffered and terminated in accordance with the recommendations set forth in the ATA-3 specification.

Fully compatible with hard drives of over 4 GB capacity

Limitations on the size of hard disks have been overcome in the FAST ATA-2/EIDE Controller. The FAST ATA-2/EIDE Controller may be used with hard drives of over 4 GB capacity with no need to change the FastFileSystem used so far for file management.

Automatically configured devices

The Controller automatically recognises any device attached to it, negotiates the highest possible data transfer rates, switches the devices into its appropriate mode and performs data transfers at their maximum transfer rates.

Automatic recognition of the processor type

The FAST ATA-2/EIDE Controller automatically detects the type of processor used and optimises and modifies some software routines in order to achieve the highest possible data transfer rate between the controller and the computer memory.

32-bit access

The computer recognises the controller as a 32-bit device configured in the address space of the previous IDE controller, which has been disconnected. Full 32-bit operation of the controller combined with very efficient software guarantees a significant increase in the speed of your computer.

Other features of the FAST ATA-2/EIDE Controller:

- ***2 devices in different modes of operation (PIO 3 or PIO 4) may be connected simultaneously to each of the ports without speed reduction.***

- ***New mass storage data verification procedure free of ROM-based errors.***

- ***The software installation is performed automatically by the installation programme script found on the enclosed floppy disk.***

READ BEFORE INSTALLING THE FAST ATA-2/EIDE CONTROLLER

Before you begin the FAST ATA-2/EIDE Controller installation, proceed with the following steps:

1. ***Before you install the controller in your computer, read The FAST ATA-2/EIDE Controller Installation Chapter.***

2. ***Special software is needed for the FAST ATA-2/EIDE Controller operation, therefore you should read the Software Installation Chapter.***

- ➤ The FAST ATA-2/EIDE Controller has to be installed on the Amiga 1200 motherboard.
- ➤ The two boards that constitute the controller are inserted in the ROM sockets and on top of the GAYLE IC.
- ➤ The Amiga ROM chips are then inserted in the appropriate sockets on the controller board.
- ➤ The little wire for the LED used to signal the EIDE device operation shall be placed on pin 39 of the Amiga HDD connector.

ATTENTION!

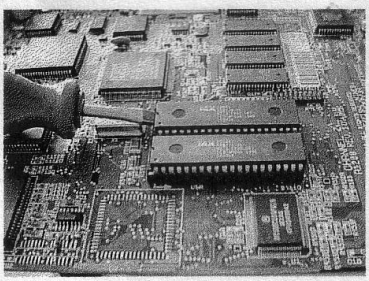
With the FAST ATA-2/EIDE Controller installed, the IDE connector (44 pins) on the Amiga motherboard cannot be used any longer!

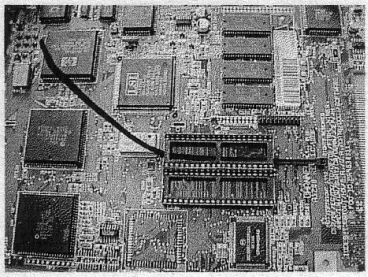
ATTENTION!

The 391774 (or 391524) and 391773 (or 391523) ROM chips shall be inserted into their appropriate sockets in the controller board!

INSTALLATION OF THE FAST ATA-2/EIDE CONTROLLER INTO THE AMIGA 1200

1. Switch off the Amiga, disconnect all external devices and turn the computer upside down.
2. Unscrew the eight screws which secure the top lid, the floppy disk drive and the Amiga motherboard. Turn the computer back to its normal position and pull away the top lid, disconnect the LED wires from the motherboard and take the top lid off.
3. Pull the keyboard frame clamp for about 3mm, take out the keyboard ribbon and remove the keyboard.
4. Remove the Amiga hard drive along with its connecting wires.
5. Disconnect the power supply wires and the floppy disk drive ribbon cable from the motherboard.
6. Unscrew the two screws that secure the Amiga motherboard to the case: one in the middle of the front part of the computer, the other close to the floppy disk drive.
7. Remove the floppy disk drive and unscrew its side supports.
8. Pull apart the metal clamps around the Amiga shield, pull out the clamp which secures the top and bottom shield parts (the left front corner of the Amiga) and remove the shield.

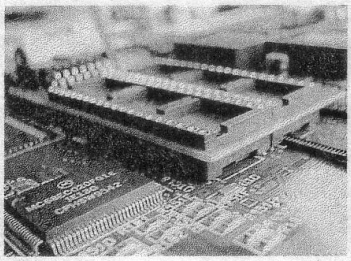


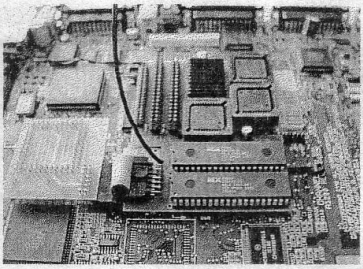


9. Carefully remove the 391774 (or 391524) and 391773 (or 391523) ROM chips out of their sockets and place them aside.
9. Insert the controller connected with the GAYLE chip socket with

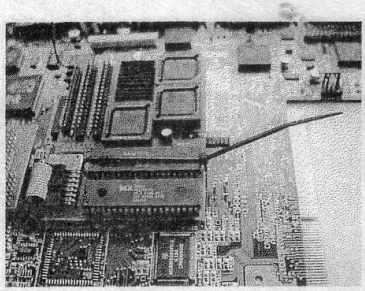
a ribbon into the ROM sockets. Mount the board with the GAYLE chip socket on the GAYLE chip and press firmly, so that the socket snaps on the chip and is in full contact with the Amiga motherboard.

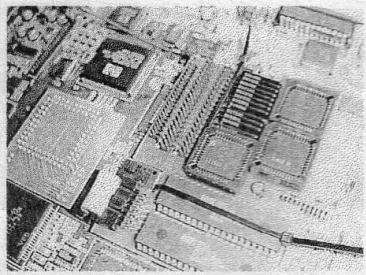
Note: It is **extremely important** that the new socket is pressed completely flat to the Amiga motherboard, otherwise the installation may result in errors.





10. Carefully press the controller into the ROM sockets on the Amiga motherboard. Secure the controller board with the plastic clamp bands **only** after all the sockets are placed **flush flat** with the controller and the controller pins are **fully** inserted into the sockets.





11. Insert both ROM chips into the ROM sockets. Inside the sockets, on the controller board, you can find information on the serial numbers of chips to be installed.
12. The wire at the left top corner of the board connects to pin 39 of the IDE connector in your Amiga.

13. Connect the devices with the controller connectors in accordance with the description you can find in the chapter *Connecting Fast ATA-2/EIDE Devices*.
14. Assemble the whole computer back together and connect all the wires and devices.

INSTALLATION OF THE FAST ATA-2/EIDE CONTROLLER INTO AN AMIGA 1200T

1. Take the main board of the computer out of its casing.
2. Take the 391774 (or 391524) and 391773 (or 391523) ROM chips out of their sockets.
3. Insert the controller connected with the GAYLE chip socket with a ribbon into the ROM sockets. Mount the board with the GAYLE chip socket on the GAYLE chip and press firmly, so that the socket snaps on the chip and is in full contact with the Amiga motherboard.
   Note: It is **extremely important** that the new socket is pressed completely flat to the Amiga motherboard, otherwise the installation may result in errors.
4. Carefully press the controller into the ROM sockets on the Amiga motherboard. Secure the controller board with the plastic clamp bands **only** after all the sockets are placed **flush flat** with the controller and the controller pins are **fully** inserted into the sockets.
5. Insert both ROM chips taken out before into the ROM sockets. Inside the sockets, on the controller board, you can find information on the serial numbers of chips to be installed.
6. The wire at the left top corner of the board connects to pin 39 of the IDE connector in your Amiga.
7. Connect the devices with the controller connectors in accordance with the description you can find in the chapter *Connecting IDE/EIDE Devices*.
8. If you have the Tower casing, you can connect the plug into the RESET switch on the front panel with RESET SW pins on the board with the GAYLE chip socket.

CONNECTING FAST ATA-2/EIDE DEVICES

- The controller has two FAST ATA-2/EIDE ports available:
  - PRIMARY PORT (2.5" connector, 3.5" connector)
  - SECONDARY PORT (3.5" connector)
- Two EIDE devices may be connected to each of these ports.
- If you connect only one EIDE device to any of these ports, set its jumpers to the SINGLE option.
- If you connect two EIDE devices to any of these ports, set the jumper on one of these devices as MASTER and of the other one as SLAVE.
- The red wire in the connection ribbon should face pin 1 on the controller board.

Note: ***The booting hard drive should be connected to the PRIMARY PORT as a MASTER (SINGLE) device.***

Note: ***The booting Mixing fast device (PIO 3, PIO 4) and slow device (PIO 0) on the same port may cause slower data transfer for the fast device.***

SOFTWARE INSTALLATION

Note: ***Before you proceed with the installation of the software of the controller, uninstall any system add-on program like IDEFIX, EIDE device, etc.***

The following files are provided on the enclosed FastATA'99 floppy disk:

- **ATA3.driver,**
- **ATA3-Install,**
- **ATA3Prefs,**
- **AllegroCDFS**
- **Mountlists: CD1, CD2, CD3, PC5, PC6, PC7, Orgella**
- **ReadMeFirst**
- **History.txt**
- **CheckLMB** (Check Left Mouse Button)
- **DriveSpeed** (DriveSpeed is used for checking speed of any drives. Syntax: DriveSpeed scsi.device n where n is the unit number from 0 to 3.)
- **ATAPIFormat** (ATAPIFormat is a low-lewel formating program for any removable ATAPI media. Syntax: ATAPIFormat scsi.device n where n is the unit number from 0 to 3)
- **FastATA'99.lha**
- **Copyright.doc**

AUTOMATIC INSTALLATION

1. Boot the computer from the hard disk.
2. Run ATA3-Install from the FastATA'99 floppy disk.

The instalation shall proceed in a fully automatic mode.
After instalation of FastATA'99, rebot your Amiga with the left mouse button pressed during start: it will start ATA3Prefs program. Click SAVE on exit from ATA3Prefs. For installation/reinstalation of AllegroCDFS start ATA3-Install once again.
ATA3-Install prepares all AllegroCDFS mountlists for your CD-ROM/CD-R/CD/RW/DVD drives.

Note: The Installer program (from INSTALL Workbench) must be present in the SYS: folder of the booting disk.

MANUAL INSTALLATION

1. Copy ATA3.driver and ChekLMB to the C: folder.
2. Copy ATA3Prefs to the Prefs: folder.
3. Add the following sequence at the beginning of the startup-sequence:

```
C:SetPatch QUIET (in OS 3.5:
C:SetPatch QUIET SKIPROMUPDATES scsi.device)
C:CheckLMB
IF WARN
SYS:Prefs/ATA3Prefs
ENDIF
C:ATA3.driver QUIET
```

HOW THE SOFTWARE WORKS

- The ata3.driver programme recognises EIDE devices connected to the Amiga, detects the A1200 processor type and takes over all the calls to the scsi.device.
- The second run of the ata3.driver gives only information on the devices connected and their modes of operation (PIO 0 to PIO 4).
- If you connect hard disks with the capacity of over 4 GB, they will be automatically divided into additional Units of the size below 4 GB.
- In preferences in ATA3Prefs you can choose the mode of operation for either SPLIT (default) or NO SPLIT. The latter means that installing a HDD will NOT divide it into logical units.

Then, use only the filesystems with NSD, TD64 or DirectSCSI commands implemented.

Note: Run ATA3.driver before partitioning HDDs larger than 4 GB!

Note: Some filesystems (e.g. FFS) don't support correctly partitions larger than 2 GB.

➤ If same of HDD is not validated ata3.driver will stop running until Amiga will finish validating this HDD.

Note: The controller without software installed operates only with the PRIMARY PORT, in exactly the same way as a standard A1200 controller.

ATAPI DEVICES

➤ If you have ATAPI-standard devices installed, the Devs/DOSDrivers folder has to include an appropriate mountlist.

Note: You can make use of the CD0 mountlist included in the STORAGE disk of Workbench 3.1. The Unit parameter of the CD0 mountlist shall correspond to the Unit number for the given CD-ROM drive:

PRIMARY MASTER	Unit 0
PRIMARY SLAVE	Unit 1
SECONDARY MASTER	Unit 2
SECONDARY SLAVE	Unit 3

Note: CDx mountlists for AllegroCDFS are stored in FastATA'99:mountlists folder

Note: If you are using any other mountlist, always set the device=scsi.device for HDD, CD-ROM, CD-R, CD-RW drives and device=trackdisk.device for removable media like LS-120, ZIP-ATAPI.

➤ Removable media drives like LS-120, ZIP ATAPI, etc., when formatted with the Amiga operational system, do not require a special mountlist as they are automatically recognised.

➤ When these media are used in the PC format, the Devs/DOSDrivers folder has to include an appropriate mountlist (PCx).

Note: ***The Unit parameter of the PCx mountlist shall correspond to the Unit number (Unit = Unit number + 4).***

for PRIMARY MASTER	use PC4
for PRIMARY SLAVE	use PC5
for SECONDARY MASTER	use PC6
for SECONDARY SLAVE	use PC7

THE ATA3PREFS PROGRAM

Note: **If you use PPC card you should start ATA3Prefs before you first time will start ata3.diver!**

- The ATA3Prefs will NOT operate when the ATA3.driver or any other software colliding with the ATA3.driver (e.g. IDEFIX, ASIM..device, etc.) has been started earlier.
- The ATA3Prefs may be used to manually adjust operation modes in any non-standard or old drives and to configure the ATA3.driver.
- Please start this program always after changing your hardware configuration. To store it, change exit by SAVE. It will save ATA3.Prefs configuration file in Envarc: folder. This file is used by ATA3.driver.
- The ATA3.driver is a resident software as a rule, thus enabling auto-booting from the LS-120 disks and from ZIP disks. You can switch off this auto-booting option by changing ATA3Prefs settings. Any changes become valid after the computer is restarted.

  Note: ***Pressing the RESTORE button in the ATA3Prefs recalls the fastest settings and auto-booting after any unwanted changes made with the ATA3Prefs software.***

  Note: ***With ATA3-Install script used, ATA3.driver and ATA3Prefs from the floppy disk are installed in such a way that keeping the left mouse button pressed at computer's boot-up causes ATA3Prefs to start. Otherwise, computer starts with ATA3.driver running.***

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