AmiCDEx

Adil Temel

COLLABORATORS

	TITLE : AmiCDEx		
ACTION	*NAME*	*DATE*	*SIGNATURE*
WRITTEN BY	Adil Temel	February 12, 2023	

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

AmiCDEx

1.1   AmiCDEx v1.0 (C) Adil Temel 1995

                              AmiCDEx v1.0

                      (C) Adil Temel 1995

                        v1.00 release

                  AMICDEX IS A FREEWARE PRODUCT

      READ THE DISTRIBUTION SECTION FOR INFORMATION ON DISTRIBUTION

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1.2 Introduction to AmiCDEx

Why was AmiCDEx written?

After buying a CD-ROM drive for my Amiga , I searched for an util that would let PC/AT Emulator boards use the same drive from the PC side. Since I couldn't find a program for this specific purpose , I started to search information about how PC uses CD-ROM drives. Looking to the MSCDEX (MS-DOS CD driver software) documentation for programmers, I realized that it should be not hard to implement a CD-ROM driver for PC that directs MS-DOS CD-ROM calls to Amiga CD-ROM drive.

Working hard for 2-3 weeks, I came to the solution, and the AmiCDEx was born.

This software should be of interest to anyone who has an Amiga with a PC/AT emulator board, and an installed Amiga CD-ROM drive.

AmiCDEx allows you to use your CD-ROM Drive , from your PC/AT Emulator board without letting the PC realize that this is infact an Amiga CD-ROM drive. All commands coming from PC is redirected to Amiga CD-ROM drive.

As being a driver program for PC and Amiga , there are two parts of AmiCDEx.

```
AmiCDEx.SYS   --> PC driver program.
AmiCDEx       --> Amiga Executable.
```

The first part AmiCDEx.SYS , which is installed on PC side, directs requests from MSCDEX to Amiga.

The second part, AmiCDEx, an Amiga executable, runs in background on Amiga, waiting commands from AmiCDEx.SYS and does interfacing function between PC and Amiga CD-ROM drive.

Note that, this software is tested and used successfully on my system which
is equipped as follows:

  - Amiga 3000 T   SCSI Harddisk , SCSI CD-ROM drive.
  - AT A2386SX board. IDE Harddisk

This program should work with original PC/AT Emulator boards from Commodore
without any problem. It detects such boards using expansion.library and
identification of installed boards.

If you own another brand of PC emulator board than C=, then you may configure
both driver programs, to be able to run on your system. The only need is that
there must be some kind of shared RAM area which can be accessed both by PC
and the Amiga. Refer to technical information of your emulator card and

                detailed~installation~guide
                .

System Requirements

 * An Amiga running Kickstart 2.04 or greater.
   (May well work on Kick 1.3 , since no Kick 2.0 specific functions are
   used).
 * An Amiga CD-ROM drive.
 * A PC/AT Hardware Emulator board installed.

1.3 About the author

                AmiCDEx is (C) and was written by Adil Temel.

There are almost certainly bugs in AmiCDEx; if you find one, or have a
suggestion to improve AmiCDEx, please contact me, giving as full and *precise*
description as you can. See also the
                'to-do'
                 section to see what I already
plan to implement.

E-mail address:

    at01k@servis.net.tr

    Valid at least until end of 1995

IRC:

    Adil (look for me on #amiga)

Snail-mail address:

    Adil Temel,
    Kimiz Sk. Ergin Ap. 14-9
    Kurtulus,
    06600 Ankara
    Turkey

```
   Telephone ++90-312-435 75 81
```

Thanks go to:

```
   Testers &      -   Still waiting ;-)
   bug reporters  -
```

1.4 Version information

Version information

This is AmiCDEx v1.00.

V1.00   -   15 May 1995   -   FIRST PUBLIC RELEASE

1.5 Installing AmiCDEx

```
                If you own a C= PC/AT Emulator board (A2286, A2386SX etc.)  ←
                    installation is
simple.

If you own another PC Emulator than C=, complete the steps below, and then
take a look for
                detailed~installation~guide
                .
```

Installation on PC Side:

```
  Transfer AmiCDEx.SYS to PC:

  Use either C= supplied 'ARead' command or use a PC formatted disk
  from Amiga to do the transfer.

  In case of ARead command don not forget to include /B (binary) switch
  from command line: (assuming you extracted AmiCDEx files in RAM:)

   C>aread RAM:AmiCDEx/AmiCDEx.SYS C:\DOS /B

  If you use a PC formatted disk then just copy the driver program to
  a PC directory (e.g. C:\DOS).

  After this step you have to insert a line in your CONFIG.SYS file:

  DEVICE=C:\DOS\AmiCDEx.SYS

  or

  DEVICEHIGH=C:\DOS\AmiCDEx.SYS
```

which will load the driver program into upper memory area if available.

Then insert a line in AUTOEXEC.BAT file:

(Preferably before SMARTDRV which allows caching of CD-ROM drives)

 MSCDEX /D:MSCD000

 or

 LH MSCDEX /D:MSCD000

which will load it into upper memory area if available.

Installation on Amiga Side:

Copy the Amiga driver program AmiCDEx, to any directory you wish.
(Easiest is C:)

Run the program as follows from your startup-sequence file:

(Preferably after 'binddrivers' command)

run >NIL: c:AmiCDEx SERVE DEVICE=device.name UNIT=unit_number

Insert device name & unit number according to your CD-ROM drive.
(Defaults are scsi.device & unit #2).

This will launch the driver program and let it waiting commands from PC.

A word about synchronization:

Both programs run first without looking for the other is already running, or
not. This is the easiest way to avoid lock-up problems.

But whenever MS-DOS tries to access Amiga CD-ROM drive , the Amiga program
should be running. If this is not the case, the AmiCDEx.SYS locks PC, waiting
for the Amiga to respond to its commands.

Running the AmiCDEx on Amiga side, immediatly resolves PC lock-up and the
connection between two programs is established.

(This is why I don't suggest adding a line into user-startup file which may
well be run later than the PC tries to access CD-ROM drive).

1.6 Starting AmiCDEx

AmiCDEx can be run currently only from shell.

Install and run the program as described in

```
                    installation
                    .
```

```
And take a look at
                    program~options
                    .
```

1.7 Configuring AmICDEx

```
                  Since there isn't any Workbench startup option yet, configuration ←
                      of AmiCDEx
rests on
                  command~line~options
                  .
```

1.8 Things I plan to implement in AmiCDEx

```
                  To do
```

Obviously, AmiCDEx is not complete. There is much room for expansion in
AmiCDEx. Features planned for the future are:

Definite

   * play-audio capabilities under MS-DOS.

Probable

   * multiple CD-ROM drive support.

  If you have any reasonable suggestions, please mail them to the
                author
                .

Bugs

There are bound to be bugs in a program of this kind, and I'd be grateful if
you would send detailed reports for any bugs you do find. As ever, be careful
about backing up your data!

1.9 Why should I use AmiCDEx?

Here is a list of the main features of AmiCDEx, to let you see at a glance
what it can do for you.

Feature list (for version 1.0)

        Uses Amiga CD-ROM drive to interface to PC/AT boards.

        Simplified installation for C= PC/AT boards.

Distribution includes detailed documentation.

Works with Workbench 2 or 3 (1.3 ?)

User configurable caching of CD-ROM data in Amiga
memory.

(Well that's all for version 1.0)

1.10   detailed installation guide

If you own a C= PC/AT Emulator board (A2286, A2386SX etc.) refer ↩
to

simple~installation
.

 Do the steps described in
            simple~installation
             first.

 This part is technical for the ones who own another brand PC/AT Emulator
board than C=.

First you have to determine a memory area that can be accessed both by Amiga &
PC (so called dual-ram) . In case of C= boards such addresses are:

 For PC: (Hex notation)

  0xD000:0000- 0xD000:4000 (PC Addressing segment:offset)

 Which is seen directly by Amiga as:

  0x218000 - 0x21C000 (If Emulator board's base address is 0x400000 then
                         0x418000-0x41C000 etc.)

At least 2048+128=2176 bytes of memory should be available for the driver
programs to work correctly with a reasonable speed.

(2048 bytes used for CD-ROM block transfers, and the extra 128 bytes are used
for various stuff.)

 Suppose that you have determined the Amiga base address to be 0x218500 and
the PC corresponding one to be 0xD000:0500 (this is what the programs use for
default, only the amiga base address is adjusted according to info from
expansion library).

  You should then write CONFIG.SYS line as follows:

   DEVICE=C:\DOS\AmiCDEx.SYS /A:0xD0000500
  or

```
  DEVICEHIGH=C:\DOS\AmiCDEx.SYS /A:0xD0000500
```

  (Note that PC segment:offset address is written as a single hex number)

  On Amiga you should use:

```
  run >NIL: c:AmiCDEx DEVICE=device.name UNIT=unit_number BASEADDR=0x218500
```

If everything is OK, the driver programs should communicate with each other
using supplied base address, without trying to detect emulator board etc.

The only problem is that the supplied base address and the following 2176
bytes should not be used by any of the emulator specific programs. If this is
the case , the worst thing is that your system starts to be unstable ,
possibly causing gurus etc.

Remember that you use this option at your own risk, and don't blame me if any
data loss or etc. occurs on your system. Playing with direct addresses
requires some technical/programming experience and if you are not sure what
you are doing,don't do it at all!

For further configuration information look
                program~options
                 .

1.11   IMPORTANT -- DISTRIBUTION

AmiCDEx is (C) Adil Temel 1995.

AmiCDEx is FREEWARE. It is NOT public domain. The author gives permission for
AmiCDEx to be freely distributed providing that no commercial gain is made
from its distribution, and no modification is made to the original
distribution.

Organisations or people wishing to include AmiCDEx on a coverdisk or CD-ROM
should contact me first to sort out the details. This EXCLUDES the AMINET
CD-ROM or Fred Fish CD-ROM collections.

DISCLAIMER

This software is provided "as-is" and the author accepts no responsibility for
damage and/or loss of data/equipment resulting from the use of this software.
(not that it's very likely! ;-})

AmiCDEx has taken a LOT of my valuable time. Feedback from users of this
software will encourage me to continue developing AmiCDEx.

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```
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'to-do'

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installation

Shell
```

```
            simple~installation
```

1.13   command line options

                Here are the detailed options list for both driver programs:

Read this carefully if you wish to increase performance and/or optimize memory
usage.

```
--------------------------------------------------------------------------
AmiCDEx (Amiga Executable) Options:
--------------------------------------------------------------------------
```
Keywords requiring an argument are marked with additional '=' (equal) sign.

SERVE

  Launch the program starting serving in background. This
  is the actual switch that lets the program do its job.
  This switch should be used with the run command:

    run >NIL: AmiCDEx SERVE {OTHER OPTIONS see below.}

FORCE

  This was a developing option. I used this whenever the server
  program stopped responding or crashed in a way. The mechanism
  is that the driver program sets specific identification
  into the BASEADDRess (i.e. allocates it) not allowing further
  instances of AmiCDEx to run. But if for any reason the server
  program stops doing its job you should be able to FORCE it to
  run without caring that another one does serving, possibly saving
  you a reboot.

  Use this with care, if both tasks become somehow active
  trying to do the jobs received from PC , the Amiga would see
  the GURU soon ;-)

KILL

  Use this command to send a quit request to a already running
  server. This will wait until the server is free to accept commands.
  Note that the same BASEADDR should be passed , since this
  command is implemented like a request from PC- side.

  Another way of quitting the program is just sending it a CTRL-C.

  For example if Shell #6 is the AmiCDEx process, type in a shell:

  break 6 C

  This will quit the server immediately after finishing its last job.

DEVICE=device.name

  Give the name of device driver that serves for Amiga

CD-ROM drive.   (default scsi.device)

UNIT=unit_number

  CD-ROM unit number, (default 2)

BASEADDR=base_address

  Determines PC<->Amiga communication base address.
  (Defaults to 0x218500 for C= PC/AT boards.)

NOCACHE

  Slowest mode, but least memory consuming. All read requests from
  PC sent directly to Amiga CD-ROM, block by block, which definitely
  will slow down the performance.

LRUCACHE

  Switch to turn on LeastRecentUsed caching on.

LRULINES=number_of_lines

  Number of CD-Blocks (each 2048 bytes) read at once.
  (default to 4 , which requires 4*2=8K of memory)

LRUSETS= number_of_sets

  Total number of LRULINES , (defaults to 16)

  Total memory used by LRUCACHE is determined by:

  LRUSETS*LRULINES*2K (default 16 , which requires 16*(4*2)=128K)

  Memory allocated whenever need arises, but never freed until
  a CD-Change occurs, or program quits, so if you are low
  on memory don't turn on LRU caching or use lower numbers.

BUFCACHE

  Switch to turn on single chunk buffered read caching on.

  (Server runs in this mode as default.)

BUFLINES=number

  Total CD-Blocks (2048 bytes) read at once for each request from PC side.
  Note that this effectively increases transmission rates from Amiga to PC,
  but it has the adverse effect of increasing response time (seek time)
  if the given number is too large (e.g. >64*2=128K)

  (default 32 , 32*2=64K)

PREFETCH=number

  How many previous blocks should the BUFCACHE start reading.

For example PC tries to read block #10000 and you give 5 here,
then actual read will start at block 9995. This may increase
transmission rates depending on further requests for decreasing
block numbers.
(If this option is used this adds to BUFLINES number increasing
total CD-Blocks read at once).

INFO

  Gives further internal information currently used by the program.

CHANGED

  Informs MS-DOS that the CD-ROM is changed, whether it was actually
  changed or not.

  This option is useful if you accessed a CD-ROM under MS-DOS and
  then changed the disk while the driver program was not running
  for any reason (or if you have a non-SCSI CD-ROM drive).

  Normally the driver program recognizes CD changes and reports this
  to PC , but I could implement this feature only via direct SCSI
  commands on my CD-ROM drive. I don't know why trackdisk like commands
  doesn't work on scsi.device.

TRKCHANGE

  Enable the recognition of diskchange with trackdisk like commands
  (TD_CHANGENUM, TD_CHANGESTATE).

  Use this option if your CD-ROM doesn't allow SCSI-direct commands
  to recognize disk changes. As with my experience this didn't
  work on my SCSI CD-ROM drive , and I used direct SCSI command to
  implement this feature.

  If TRKCHANGE option doesn't work on your CD-ROM drive and it also
  doesn't know support SCSI-direct commands the only way of letting
  MS-DOS register disk changes is to stop AmiCDEx from serving
  (send a CTRL-C) and restarting it with same options adding 'CHANGED'
  keyword to command line, after inserting new disk into drive.

  The program installs a vertical blank IRQ, which it uses for looking
  to PC requests, as well as for diskchange checking. Of course 50/60
  times checking is not logical and it does CD checking every 4 seconds
  (200 VBLANKS).

  If you can change CD's less than this time this will be a problem
  to MS-DOS , not clearing its internal buffers ;-)

RESETCD

  Issues a full-range SEEK to the CD-ROM. Used while testing the
  performance of the program. When the server starts, it reads following
  block sequences from CD: #last-2,#1,#last-1,#0

  This command keeps CD motor running for a short while, which I used to
  create somewhat same conditions before starting CD-ROM performance

```
   test programs on PC side.
```

DEBUG

```
  Last but not least this option is still here along with debugging
  information while developing the programs. Since I was not sure of
  such a hardware specific program to function on different platforms
  I let it there.

  When using this command start the server in a seperate shell  window
  without 'running' it.

  And look to the funny messages given from the server ;-)

  Pressing CTRL-E turns on/off debugging.

  Pressing CTRL-C in this window quits the server.
```

```
----------------------------------------------------------------------
AmiCDEx.SYS (PC driver):
----------------------------------------------------------------------
```

```
As with other MS-DOS CD-ROM driver software AmiCDEx.SYS knows  the following
options:

    DEVICE=C:\DOS\AmiCDEx.SYS [/D:DRIVER_NAME] [/A:BASEADDRESS] [/V]
```

/D:DRIVER_NAME

```
  Limited with 8 chars determines the name MSCDEX finds AmiCDEx in memory.
  The default is MSCD000.
  If you wish to use another name don't forget to say MSCDEX your
  supplied name here.

  For Example:

    DEVICE=C:\DOS\AmiCDEx.SYS /D:MYDRIVE

  Then call MSCDEX in AUTOEXEC.BAT file as:

    MSCDEX /D:MYDRIVE
```

/A:BASEADDRESS

```
  Sets base address for PC driver program. See
              detailed~installation
              .
```

/V

```
  Verbose output of PC driver program.
```

1.14 FILES

```
                 You should have received following files:
-------------------------------------------------------

 AmiCDEx
 AMICDEX.SYS
 AmiCDEx.guide
 AmiCDEx.readme


-------------------------------------------------------
```

If you don't have all off them then you probably have a   crippled/changed
archive.

Contact the
                 author
                  to learn how to get a full unchanged distribution archive.