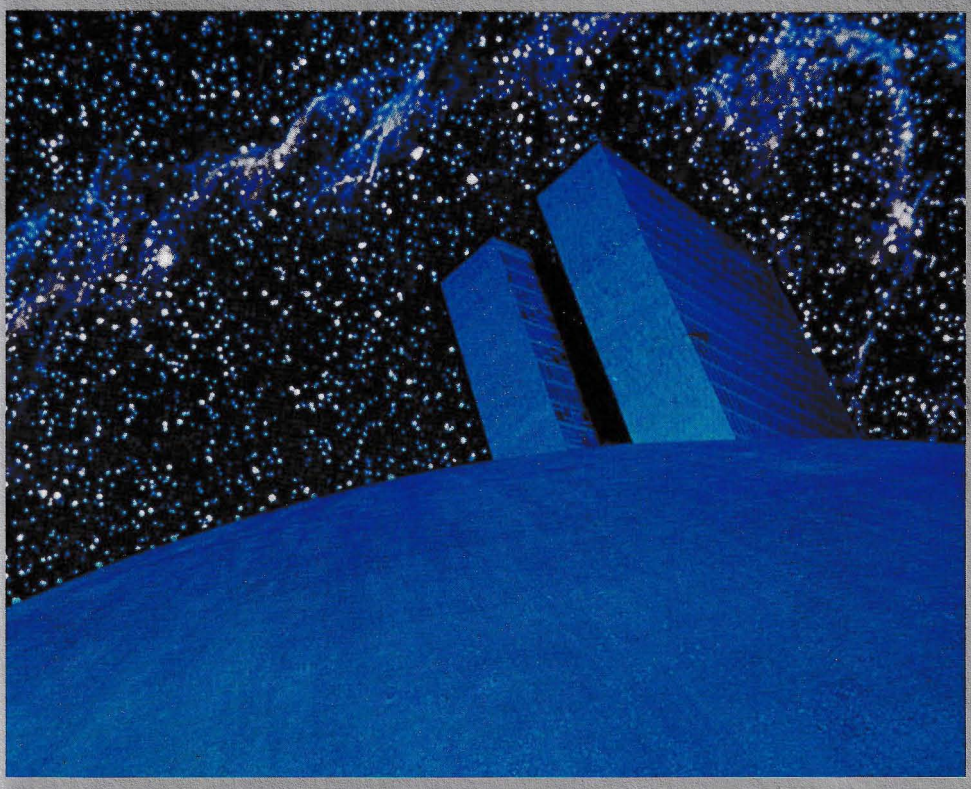

The 64 Emulator

Users Guide

ReadySoft Inc.

The 64 Emulator 2

For the Amiga

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All prices are subject to change without notice. For current prices, please contact ReadySoft Inc.

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To provide uninterrupted use of The 64 Emulator 2 in the event that something should happen to your disk, ReadySoft Inc. strongly suggests purchasing a backup disk. Backups may be ordered when you register your software by filling out the backup order form on the registration card or at a later date by contacting ReadySoft. The fee for a backup is $10.00 US + $3.00 US shipping and handling ($13.00 + $3.00 CDN). International orders $10.00 US + $5.00 US shipping and handling.

Technical Support

Technical support will be provided to REGISTERED USERS ONLY. To become registered you must complete and send in the original software registration card (supplied with the disk) to ReadySoft Inc. In all correspondence with ReadySoft Inc., please state the serial number on your disk label.

Before you call or write, please refer to the "Common Problems and Solutions" section of this manual. Telephone technical support is limited to a maximum of 5 minutes, so please be clear and concise with your questions and have your serial number ready.

Serial Interface

The 64 Emulator 2 may be purchased without the Serial Interface (used to connect Commodore 64 disk drives and printers to the Amiga). If you later decide you would like one, the Serial Interface may be purchased from ReadySoft Inc. for $24.95 US + $4.00 shipping and handling ($29.95 + $4.00 CDN). International orders are $24.95 US + $5.00 US.

Introduction

Now with ReadySoft's The 64 Emulator 2, you can open new worlds within your Amiga computer. Commodore 64 software that was previously unusable can now be run on your Amiga, giving you access to thousands of programs. Commodore 64 owners who had been considering an upgrade to the Amiga 500 can now do so without losing their entire library of 64 software.

We hope you enjoy using The 64 Emulator 2, and welcome any comments. Before using The 64 Emulator 2, ReadySoft Inc. suggests you read through this manual in its entirety.

Loading

To load The 64 Emulator 2, simply insert the disk into drive 0 (the built-in Amiga drive) and reboot your Amiga by pressing the CONTROL-AMIGA-AMIGA keys. The 64 Emulator cannot be run from the Workbench (by icons) -- you must reboot your machine to load the program.

When loading The 64 Emulator 2, the program disk must be write protected (the small hole showing), and all disk activity must be complete (all drive lights, including hard drives, must be off). If the disk is not write protected, then you will be prompted to write protect the disk before the program will load.

Installing Hard Drives

If you don't have a hard drive with your Amiga, please skip this section.

The 64 Emulator 2 does support some hard drives. To install a hard drive for use with The 64 Emulator 2, you must insert the correct sequence of commands required to boot the hard drive into your startup-sequence (this does not mean you can install The 64 Emulator 2 program on your hard drive). These commands must be placed after the command STARTC64, and before the command C64 already in the startup-sequence supplied by ReadySoft Inc. The startup-sequence can be found in the file S:STARTUP-SEQUENCE on The 64 Emulator 2 disk.

The device name given to the hard drive must be DH0:, DH1:, DH2:, or DH3:. If your hard drive is not referenced by one of these names, use the AmigaDOS ASSIGN command to rename the hard drive when using it with The 64 Emulator 2. For example, if your hard drive was referenced by JH0:, you could insert ASSIGN DH0: JH0: into your startup-sequence to allow The 64 Emulator 2 to access your hard drive. Some hard drives also require an extra command to be inserted in the sequence to "mount" the drive to the Amiga (such as DJMOUNT).

Not all hard drives are compatible with The 64 Emulator 2.

Serial Interface Cable

The 64 Emulator 2 is sold in three different configurations - without a Serial Interface, with a Serial Interface for the Amiga 1000 or with a Serial Interface for the Amiga 500 and Amiga 2000 (see front of box to determine which package you have purchased).

The Serial Interface is a cable that allows a Commodore 1541, 1571, 1581 or compatible disk drive (and Commodore serial printers) to be connected to the parallel port on the back of the Amiga. With this interface, The 64 Emulator 2 can access Commodore 64 peripherals that would not otherwise be compatible with the Amiga. The primary advantage of using a disk drive such as the 1541 is increased compatibility with 64 software and the ability to transfer programs and data to AmigaDOS 3 1/2" disks.

Be very careful when connecting cables and peripherals to your Amiga. If cables are not plugged straight into the port, they can sometimes reset your Amiga and possibly damage some of the I/O chips in the Amiga.

If you have not purchased a Serial Interface, you can skip ahead to the next section.

To attach your Serial Interface to your Amiga, connect the wide end of the cable to the parallel port on the back of the Amiga (not the Serial port on the back of the Amiga) and the round end to the back of the disk drive. The difference between the Amiga 1000 interface cable and the Amiga 500/2000 interface cable is the connector on the wide end of the interface. If the cable you have purchased does not fit into the parallel port on back of your Amiga, you may purchase the opposite cable from ReadySoft (see page 2 of this guide). If you also have a Commodore 64 compatible printer, connect the printer cable from the Commodore 64 disk drive to the printer.

Once you have connected the Serial Interface you will have to set the system configuration to allow The 64 Emulator to access the serial devices (see the following section).

Configuration Editor

The configuration editor allows you to customize The 64 Emulator 2 to your particular hardware.

To display the configuration editor, hold CONTROL and press the HELP key when The 64 Emulator 2 is loaded. A pop-up menu describing the current hardware setup will appear overtop of the 64 program that is currently running. To change any of the options, move the mouse pointer to the highlighted area containing the current settings and press the left mouse button. By repeatedly

pressing the left mouse button, the program will cycle through all possible settings for the selected option.

To exit the Configuration Editor without saving the settings to disk, click on any area outside the Configuration Editor box.

Saving the Configuration Settings

Once you have set all options to correspond with your hardware, insert any AmigaDOS disk and click on the SAVE CONFIG option. The current settings will be saved to the diskette and can be loaded by clicking on LOAD CONFIG with the correct disk in the drive. Saving settings on The 64 Emulator 2 disk will change the defaults when you next load the program.

After the settings are saved, you will be returned to the current 64 program. If the disk is write protected, the settings will not be saved and you will remain in the Configuration Editor. Simply write-enable the disk by covering the small hole, reinsert the disk, and click on SAVE CONFIG again.

When saving configuration settings to the program disk you must remember to always write protect the disk after saving.

Note that you can change the configuration without saving the new settings to disk. This allows you to change options (such as joysticks) for different programs without having to repeatedly save the configuration.

The Configuration Options

Disk Drives

The 64 Emulator 2 allows you to access Amiga floppy disks, hard drives and a RAM disk as well as Commodore 64 drives connected with a Serial Interface cable. Disk drives are accessed during 64 emulation by specifying a device number from 8 to 11 (up to four drives may be on-line at one time). Using the configuration editor you may assign each of the four drive numbers to any combination of Amiga or 64 drives.

Amiga Drives

Valid Amiga drive names are: DF0:, DF1:, DF2:, DF3:, DH0:, DH1:, DH2: DH3: and RAM:. DF refers to floppy disk drives (DF0: is the built-in drive), DH refers to hard drives and RAM: refers to a temporary file that is created in the RAM of the Amiga (RAM: requires an Amiga with at least 1 Megabyte of memory). See your Amiga reference manuals for more information on Amiga devices.

The 64 Emulator 2 is also compatible with the Amiga 5 1/4" drive (model 1020). To read 1541 disks on these drives, select appropriate device name (ie. DF1: or DF2:) and then set the drive type to "1541 on A1020". You may also use a stand-

ard Amiga 3 1/2" drive to read 1581 format disks by selecting "1581 on A1010". Both of these options are read-only -- you cannot write back to the disks.

If you have chosen an Amiga drive you may then select whether or not to emulate a 1541. Click on the prompt to the right of the drive selection to toggle between Amiga Standard and 1541 Emulation. If 1541 Emulation is selected, a file called C1541 will be created on the disk in the specified drive when you issue the format command from the 64 (see Disk Commands section). The file holds the same amount of storage as would a standard 1541 disk and will respond in almost exactly the same manner as a 1541 disk drive. You may alter the letter beside the drive type to allow more than one emulation file on a disk (the letter selected is the first letter of the emulation file name, typically C for C1541).

If the 1541 Emulation option is not selected, the drive will be less compatible with some 64 software but you will have the full storage capacity of the Amiga disks and be able to access files that are stored in standard AmigaDOS format. When a disk is not emulating a 1541, there are only two file types, PRG and DIR. All program (PRG), sequential (SEQ) and user (USR) files will be displayed as program (PRG) files and all Amiga sub-directories are displayed as DIR. Relative files are not supported when Standard Amiga is selected.

To access an Amiga drive subdirectory you must assign an unused device name to the name of the directory you want to access in your startup-sequence. For example, if you want to access DF0:C64Programs as a sub-directory, you can enter ASSIGN DF3: DF0:C64Programs in your startup-sequence. This allows DF3: to access the subdirectory on your DF0: disk. Note that DF3: may be replaced with any unused device name, including DF1-3, DH0-3 and RAM:. See page 4 for more information about altering the startup-sequence.

Commodore 64 Drives

Commodore 64 disk drives (with the Serial Interface) may be used by selecting C64 as the drive type.

You may also access a Commodore 64 disk drive by a device number other than the number it is set to in the disk drive's hardware. All Commodore 64 disk drives default to device number 8. If you wanted to use an Amiga drive as device 8 and the Commodore 64 drive as device 9 (even though it is a hardware device 8), you could set the device 9 prompt in the configuration seetings to C64 and the device type prompt (beside it) to Serial Cable 8. This would tell The 64 Emulator 2 the whenever an access is made to device 9 to translate it to use device 8 on the serial bus.

To access any drives when using The 64 Emulator 2 you must specify the appropriate device number (8 to 11) it is assigned to when issuing disk drive commands. It is therefore possible to have (for example) a Commodore 64 drive as device 8, Amiga floppy drive 0 as device 9, An Amiga hard drive as device 10 and RAM as device 11.

Printers

Printers are selected in much the same manner as disk drives. There are two device numbers (4 and 5) assigned to printers during 64 emulation. Through the use of the configuration editor, you can assign each of the two devices to one of three printer types: Amiga parallel, Amiga RS232 or Commodore 64.

Amiga Parallel Printers

Amiga parallel printers are connected to the parallel port on the back of the Amiga. To select this type of printer, set the printer type to PAR:.

Amiga Serial (RS232) Printers

Amiga serial printers are connected to the serial port on the back of the Amiga. To select this type of printer, set the printer type to SER:. Serial printers have a number of options that must be set using the preferences tool before using the printer (these include baud rate, parity and word length). Remember that the disk will have to be write enabled when saving new preferences to the disk (make sure to write protect the disk once the changes have been saved). Consult your Amiga manuals for more information on using the Preferences tool.

Commodore 64 Serial Printers

Commodore 64 serial printers are connected to the parallel port of the Amiga using the Serial Interface cable (or alternatively are connected to the 64 disk drive which is in turn connected to the parallel port of the Amiga with the Serial Interface cable).

Please note that no conversion is performed on any characters sent to the printers during 64 emulation (unlike in Amiga mode which translates characters). The individual 64 programs are required to handle the necessary conversions.

Modems

The 64 Emulator 2 supports any standard Amiga modem connected to the serial port. The 64 Emulator 2 will not work with any Commodore 64 modems designed to plug into the Commodore 64 user port (such as the 1650) because the user port is not present in the Amiga.

Modems require no setup in the configuration editor as the specific 64 program is responsible for selecting baud rate, parity and all other settings. Baud rates of 50 and 75 that are allowed in the 64 are not available during 64 emulation, however baud rates of 2400, 4800, 7200, 9600 and 19200 that are not implemented on the 64 are supported by The 64 Emulator 2

Port Conflicts

As several of the peripherals mentioned above require the same Amiga port, a potential conflict arises if two such devices are required to be on-line simultaneously. Two possible conflicts are between ReadySoft's Serial Interface and

an Amiga Parallel printer and between a modem and an Amiga Serial (RS232) printer. If such a case arises, a prompt will appear asking you to connect the device that the 64 currently requires. Once the device is connected, click the left mouse button to continue or if you don't want to use the requested device, press the right mouse button to cancel the prompt. The 64 Emulator 2 remembers which device is currently connected and will only request the change if a peripheral is not connected to the Amiga.

Mouse/Joystick Ports

The Amiga has two control (joystick) ports which can be configured to allow the use of a joystick, the Amiga mouse or a light pen. The ports must be set for the peripheral that is currently in the port (joystick, mouse or light pen) otherwise input cannot correctly be read (ie. you cannot simply plug a joystick into port 1 and expect to be able to use it without first setting the configuration).

Joysticks

Many 64 programs require that a joystick be in a specific port (1 or 2). If a program appears not to be reading the joystick, first make sure the desired port is set to read joysticks and if this is the case, try setting the opposite port to read joysticks and connecting the joystick to the other port.

Mouse

The 64 Emulator 2 allows you to select how the Amiga mouse is to be interpretted by the 64: as a 1350, as a 1351 or as paddles.

The default setting for the Amiga mouse is Paddles.

The 1350 and 1351 are two standard types of mice for the Commodore 64. The 1350 sends information as if the mouse were a joystick, reading only the up, down, left and right mouse movements (the movements are not very sensitive using this emulation). The 1351 sends proportional information much like the Amiga mouse, reading the velocity as well as direction for much smoother mouse movement. Set the emulation to whichever the program you are running supports (if the program supports both, select the 1351).

The mouse can also be read as if it were a set of paddles. The horizontal movement is treated as one paddle and vertical movement is treated as the other paddle. This type of emulation is most useful when running programs that use devices like the KoalaPad graphics tablet.

A side effect of the method that the Commodore 64 uses to read from the control ports will cause characters to be displayed on the screen when a joystick or mouse is moved if the 64 software is not reading the ports. This can be avoided if a mouse is connected to the port by setting the port configuration to paddles (the default setting).

Light Pen

When using a light pen with The 64 Emulator 2, it must be plugged into Port 1. You must also set the configuration for Port 1 to joystick.

1764 RAM Expander

The 1764 RAM expander is a device that allows 256K of RAM to be added to a Commodore 64. If your Amiga contains at least 1 Megabyte of memory, the configuration editor will allow The 64 Emulator 2 to simulate this device. By setting this option to ON, 256K of the Amiga's memory will be set aside to be accessed as if a 1764 cartridge was connected.

Monochrome Mode

The 64 Emulator 2 spends a significant amount of time creating Amiga video images from the screens that the 64 specifies. This process is complicated by the variety of methods of generating color that are available on the 64. When monochrome mode is enabled, all text and high resolution images are displayed with only two colors - green and black, just like a monochrome monitor. For programs that are very screen intensive but where color is not essential, using monochrome mode gives a noticable speed increase.

Border

Due to hardware limitations of the Amiga, generating a border around the entire screen would greatly slow down The 64 Emulator 2. As an alternative, The 64 Emulator 2 allows you to select a border at the top and bottom of the screen. The speed will not increase if the border is turned off, but it may make the screen more attractive with some programs.

Alternate Character Set

The Amiga displays a higher resolution than the Commodore 64. This option allows The 64 Emulator 2 to use an alternate character set whose letters are clearer than the standard 64 character set. To select the alternate character set, change this option to ON. Click the option again to turn it off.

Freeze

The freeze option allows you to save the 64 program that is currently running onto an Amiga disk for later use. To use this option, first load the program you wish to freeze then set the configuration editor to "SAVE" and select a freeze letter (A-Z). Exit from the configuration back to the running program and then press <CONTROL><RIGHT ALT><HELP> simultaneously. The program will be frozen to the disk in DF0:. When you want to continue using the program, set the configuration editor to "LOAD" and select the appropriate letter. Reset BASIC (<CONTROL><LEFT ALT><HELP>) then press <CONTROL><RIGHT ALT><HELP> and the program will be reloaded and con-

tinue executing where it left off. This feature is most useful in transferring protected software to Amiga disks.

Line Feeds

If your printer requires line feeds, you may select a line feed to be sent whenever a 64 program sends a carriage return. Set the option to "OFF" if you are printing graphics or you may cause some of your graphics to be printed garbled.

BASIC Commands

The 64 Emulator 2 allows all Commodore 64 BASIC commands:

ABS, AND, ASC, ATN, CHR$, CLOSE, CLR, CMD, CONT, COS, DATA, DEF, DIM, END, EXP, FN, FOR, FRE, GET, GET#, GOSUB, GOTO, IF, INPUT, INPUT#, INT, LEFT$, LEN, LET, LIST, LOAD, LOG, MID$, NEW, NEXT, NOT, ON, OPEN, OR, PEEK, POKE, POS, PRINT, PRINT#, READ, REM, RESTORE, RETURN, RIGHT$, RND, RUN, SAVE, SGN, SIN, SPC, SQR, STATUS, STEP, STOP, STR$, SYS, TAB, TAN, THEN, TI, TI$, TO, USR, VAL, VERIFY, WAIT.

You can also use BASIC 4.0 which adds a number of disk drive commands to BASIC. These include:

CATALOG - list all files on a disk

DIRECTORY - same as catalog

DLOAD - load from disk drive: DLOAD"file name"

DSAVE - save to disk: DSAVE"file name"

COPY - copy file on disk: COPY"file name"TO"new file name"

CONCAT - join two files: CONCAT"file name 1"TO"file name 2"

RENAME - rename a file: RENAME"file name"TO"new file name"

DOPEN - open a file number x: DOPEN#x,"file name"

DCLOSE - close file number x: DCLOSE#x

APPEND - open a file for write to end of file: APPEND#x,"file name"

RECORD - position to record y in relative file x: RECORD#x,y

MONITOR - enter machine language monitor (X to exit back to BASIC)

If the BASIC 4 selection in the configuration editor is changed, The 64 Emulator 2 will reset BASIC when you exit from the configuration editor. BASIC 4 runs slower than BASIC 2.

This guide is not intended to be a reference for the above BASIC commands. A number of good books are available that outline how to use these commands.

Disk Drive Commands

The 64 Emulator 2 allows almost all Commodore DOS commands, The following is a brief description of how to access disk files.

As mentioned in the Configuration Editor, disk drives are assigned a number from 8 to 11. Whenever you want to access a drive, you must address it with it's assigned device number and the number of the drive within the device. The Commodore 64 allows one device to have more than one disk drive (referenced as drive 0 and drive 1) however The 64 Emulator 2 only allows one drive per device (drive 0) so all references must be to drive 0 (though device numbers may vary from 8-11).

To see what files are stored on a disk, you must load a directory. To do this, enter the following:

LOAD"$",<device number> <RETURN>

LIST <RETURN>

Replace <device number> with the device number of the drive you want to address (8-11). At the end of each command you must press the RETURN key.

Loading a program is very similar to loading the directory. Enter the following:

LOAD"<program name>",<device number> <RETURN>

Replace <program name> with the name of the program you want to load. Once the program is loaded, type:

RUN <RETURN>

and the program will begin executing.

Some programs (usually programs that run automatically after being loaded) require a second number after the LOAD command. In this case enter the following:

LOAD"<program name>",<device number>,1 <RETURN>

To load the first program on the disk, enter :* as the program name (you may also include the ,1 after the load command as above):

LOAD":*",<device number> <RETURN>

To save a program disk, enter:

SAVE"<program name>",<device number> <RETURN>

If the file already exists on the disk, scratch the file before saving (see below) or enter:

SAVE"@<program name>",<device number> <RETURN>

Disk maintenance commands (scratch, rename, copy etc.) can be sent to the disk drive through the command channel. To send a command to the drive, enter the following:

OPEN 15,<device number>,15,"<disk command>":CLOSE 15 <RETURN>

Disk commands take the form <command><drive#>:<file name>. For example, to scratch a file called TEST, you would use the disk command s0:TEST (note that the drive number is always 0). Examples described in the following commands can be substituted for the <disk command> in the above example.

Rename allows you to change the name of an existing file.

r0:<new name>=<old name> eg. r0:new address=address file

Copy allows you to create a duplicate of an existing file with a different name.

c0:<new name>=<current name> eg. c0:address2=address file

New clears a disk for use. If you are referencing an Amiga drive, you must first format the Amiga disk using the AmigaDOS "format" command from Workbench, or CLI. If you are using the 1541 Emulation mode, the new command will create a file called C1541 on the disk. If you are not using 1541 emulation, the new command is ignored.

n0:<disk name>,<2 digit id> eg. n0:mail list disk,ml

Validate updates the remaining free space on the disk and also removes any improperly closed files.

v<drive number> eg. v0

Initialize forces the drive to read the current disk in the drive. This command is rarely needed.

i<drive number> eg. i0

The 64 Emulator 2 also supports memory commands, buffer commands, U commands and relative records position commands when using 1541 emulation. ReadySoft suggests consulting other 64 reference books for a complete description of the use of these commands.

If a command issued to a disk drive generates an error, the command channel may be read to display the error. Enter the following:

```
NEW <RETURN>
10 OPEN 15,8,15 <RETURN>
20 INPUT#15,A$,B$,C$,D$ <RETURN>
30 PRINT A$,B$,C$,D$ <RETURN>
40 CLOSE 15 <RETURN>
RUN <RETURN>
```

The Keyboard

As the Commodore 64 keyboard and the Amiga keyboard contain several different keys, The 64 Emulator 2 changes the functions of several Amiga keys to correspond to keys that are required by the 64. The following table outlines the major changes:

Amiga Key	Performs function of:
ESC	RUN/STOP
DEL	RESTORE
TAB	CONTROL
Left AMIGA	COMMODORE Key
F10	HOME
SHIFT F10	CLR
BACKSPACE (or BACKARROW for A500/2000)	DEL
SHIFT BACKSPACE (or SHIFT BACKARROW)	INST

There are three Commodore 64 keys that perform no function unless pressed with another key, these are: SHIFT, CONTROL and COMMODORE. SHIFT is used to access capital letters, graphic symbols and punctuation. CONTROL is used with the 0-9 keys to change colors and many programs use CONTROL and a letter to perform different funtions. The COMMODORE key is used with the 0-9 keys to change color and with letters to generate alternate graphic symbols. The SHIFT and COMMODORE keys when held down together will toggle the screen between upper case/lower case and upper case/graphics.

The RUN/STOP key (ESC on the Amiga) is used to stop execution of BASIC programs and loading files. If holding RUN/STOP does not stop the program, hold RUN/STOP while pressing the RESTORE (DEL on the Amiga) and BASIC should stop. If this fails, pressing CONTROL, LEFT-ALT, and HELP simultaneously should reset the 64 to BASIC, clearing the current program (as if the emulator had just been loaded). If this doesn't stop the program, you will have to reload The 64 Emulator 2.

Transfer Software

To start using the Transfer software, either load Workbench, then insert The 64 Emulator 2 disk and double click the Transfer icon, or type Transfer from the CLI.

Once the Transfer software has been loaded, you must select the source ("from") drive and destination ("to") drive. To do this, move the mouse to the current

drive setting and press the left mouse button repeatedly until the desired drive number is displayed. Repeat the same procedure for the destination drive.

You must now select the drive type. If C64 is selected as the drive name, you may select the device number of your Commodore 64 disk drive (the default is 8). If an Amiga drive is selected you may either select Amiga Standard (the default) or 1541 Emulation. If the drive type selected is a 3 1/2" disk, 1581 disks can be read. If the drive type is a 5 1/4" drive (A1020) drive, 1541 disks can be read. Only the SOURCE disk can read 1581 disks on an A1010 or 1541 disks on an A1020 -- the DESTINATION disk cannot write to either of these formats.

Once the drives have been selected, click on "Display Directory" to see the files that currently exist on the disk. You may select the files to copy by clicking on the file names or click on ALL to copy the entire disk. Use the slider gadgets beside the directory to view the files that may not be displayed on the screen.

If you are transferring data (and not programs) between the 64 and the Amiga, you may wish to translate the character codes from Commodore 64 codes to true ASCII (this is most useful when transferring database and word processing files). Your 64 data must be in Commodore 64 codes before transferring. If you are using a word processor such as PaperClip, create a Commodore 64 codes sequential file before transferring. If you are using a database such as Superbase, export your files before transferring. To convert a file, click again on the program name in the directory and "PET->ASC" will appear. To convert from ASCII to Commodore 64, click a third time and "ASC->PET" appears. Clicking a fourth time will deselect the file, and the cycle repeats.

Commodore 64 Printer Drivers

The 64 Emulator 2 allows you to use your Commodore 64 printer directly from Amiga software rather than only during 64 emulation.

Before using your 64 printer, you must connect it to the parallel port with ReadySoft's Serial Interface cable. Once the printer is connected, you must then run Use64Printer (a small program supplied on The 64 Emulator 2 disk) that will redirect printer output to your Commodore 64 serial printer. You must also select an appropriate printer file using Preferences (see your Amiga manual for more information on Preferences).

Once you have loaded your workbench disk, copy the file called Use64Printer from The 64 Emulator 2 disk to your workbench disk. This can be done either with the Workbench by dragging the Use64Printer icon to a new disk, or from the CLI by using the COPY command (don't forget to copy the .info file as well). Now modify your startup-sequence to include the line:

Use64Printer

Now when you boot your workbench disk, the printer output will automatically be redirected to your Commodore 64 serial printer. Note that you must select that you are using a parallel printer in Preferences.

If you do not want to install this program on your workbench disk, you can simply click on the Use64Printer icon to run the program. If you reboot or turn off your system, you will have to run Use64Printer again to access your 64 printer.

Since many of the Commodore 64 printers are not supported by the Amiga printer drivers supplied by Commodore, ReadySoft has created a number of printer drivers specifically for some of the more popular Commodore 64 printers. The printer drivers are in the Devs:printers directory on The 64 Emulator 2 program disk and should be copied into the Devs:Printers directory on your workbench disk. Once this has been done, you should run the preferences program and select the appropriate printer driver. Third-party printer interfaces that attach between ReadySoft's Serial Interface cable and your Commodore 64 printer should be set to transparent mode and an appropriate Amiga printer driver selected, or set the interface to emulation and select the 1525 printer driver.

If there is no printer driver for your printer then try printers that are similar to it. If no printer driver seems to work, use the 1525 printer driver (this printer has few text enhancements but should at least give you text output).

If Use64Printer has been run and you would like to switch back to parallel printer output, you can click on the 64PrinterOFF icon on The 64 Emulator 2 disk. Once turned off, use the 64PrinterON icon to reenable the 64 serial printer.

To dump graphics onto your Commodore 64 printer, you must have the following set in Preferences' Grphic Select section:

- BLACK and WHITE images (Not Grey-Scale or Color)
- Aspect to HORIZONTAL (LO-RES screens can be printed in VERTICAL)
- Threshold set to 8.
- NEGATIVE (If you have a dark background).

Certain printers do not support the Amiga's international character set. ReadySoft has added 96 characters to the supplied printer drivers to allow some printers to access these additional characters. Any printer that supports the Commodore 1525 codes for bit-mapped graphics will have the new characters installed.

Not all printer drivers support all of the enhancements available on Amiga word processors. ReadySoft has attempted to provide you with as many features as possible but with certain printers some features may not be accesible due to the printer's hardware limitations (some printers don't even support underlining). Text enhancements (such as Near-Letter-Quality or Itlaics) are not available for the international characters with the ReadySoft printers drivers.

Limitations

Due to the nature of The 64 Emulator 2, some programs will run between two and five times slower than the Commodore 64, others will run at full speed. This slow-down will not be noticable on all programs. Games that allow you to change the speed of play should be set for maximum speed to compensate.

Due to hardware limitations on the Amiga, sprites may from time to time flicker or change color. This is most noticable when many sprites are close to each other.

Most protected software requires the Serial Interface and a 1541 disk drive to load the program. This is due to the copy-protection employed by various companies. Even with a Serial Interface cable, some software may not load with The 64 Emulator 2 if fast loaders are used as part of the protection.

The 64 Emulator 2 requires complete control of the Amiga hardware, and as such, multitasking is not allowed during emulation.

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