



# GPAC

## Dementia Defender

for  
Commodore 64/128

[youtube.com/graydefender](https://youtube.com/graydefender)

March 2017

## **INTRODUCTION**

You play as GPAC, a former M.D. who, over the years, has seen many, many, cases of dementia through his practice. You have spent the majority of your life eating poorly, but now are on a health crusade. Fed up, you break into the worlds largest nutritional center (the De Beers of vitamin factories), with the intent of collecting as many nutritional supplements and Vitamin Dots, as possible. This is no simple task. Standing in your way, are four of your internal demons (ghosts), materialized as GMO's (Genetically modified organisms), HFCs (High Fructose Corn syrup) , MSGs (Mono Sodium Glutamates), BPAs (Biphenyls). Make your way through the many floors of this warehouse, collecting as many Vita dots and nutritional supplements as possible without succumbing to your "demons". You start with three lives. You must act quickly because, once the seal to the room is broken, the Vita dots start to lose their nutritional value over time, costing you valuable points. Each room is stocked with Five Super Antioxidant Super Pills which will temporarily repel your "demons", sending them back to where they came from. Being a super hero is no easy job. Be smart, be brave, be swift, because that's what it will take to save the world from Dementia.

## **BACKGROUND**

Pac-Man is arguably the greatest video game ever created. From the very beginning, the concept for GPAC was a project to create a clone of the arcade version of Pac-man but, with a little Gray Defender personality sprinkled in. Originally this idea was developed in the late 80's although not as feature complete. In the original version, the ghosts had predetermined patterns, no ghost eyes, no title screen, and one map. The source code for the original project was lost. [Check out the first video in the Pac-Clone series on youtube ([youtube.com/graydefender](https://www.youtube.com/graydefender)) for more on that story.] Fast forward nearly 30 years and GPAC Dementia Defender is born. My primary motivation for the project was to bring the original game back to life but, this time finish what I had started so long ago.

## BACKGROUND - Continued...

With this game, it is my hope that I inspire a couple of people to try their hand at programming on the Commodore 64. This is why I did the video series, as well as why it is freely distributed. The game has a (sort of) health theme, which is my way of reminding people to try to eat a healthy diet and avoid as many potential toxins as possible. I dedicate this game to my Mother and her brother (my uncle) who both lost their lives to cancer in their 40's.

## TITLE SCREEN

The title screen allows you to start the game at an advanced level. You can do so by pressing the F1 key on the keyboard or by pressing the joystick up/down to cycle through the various map levels. Pressing the space bar on the keyboard or the fire button on the joystick will initiate game play. One of the available options will allow you to read the "back story" of the game. There *may even* be an easter egg built into this screen. The title screen boldly displays the high score at the top. The point values you can be awarded are also displayed. When game play ends, you are returned to this title screen.



## ATTRACT MODE

Sit around on the title screen for too long without making a selection and the attract mode will start up. Attract modes harken back to the time when video games lined arcade rooms waiting for people to insert quarters, desperately trying to "attract" people to play. When attract mode begins, a random maze is selected in which the computer plays out one life. During that one life it is possible, although improbable, for the computer to complete an entire map. If you are not very good (*ahem*), I mean careful, the computer can even overtake your high score. Attract mode can be interrupted by moving the joystick, pressing fire button, hitting Run/Stop or the space bar on the keyboard.

## LOADING THE GAME

Most likely, if you are reading this manual, you were one of the limited few who has a physical copy of the game.

Complete the following steps to load the game:

1. Insert the GPAC diskette into your Commodore compatible disk drive
2. On your Commodore 64/128 type in the following at the "ready" prompt:
  - a. Load "\*",8,1
  - b. Type "Run" and press enter

If for any reason the game fails to load, keep in mind, this game, along with the source code is freely available to download on the internet and plays great in emulation. Download the full source code here:

<http://tiny.cc/gpacsource>

Or the just the game and this manual here:

<http://tiny.cc/gpacdd>

## HOW TO PLAY

Everyone knows how to play Pac-man...right? Well GPAC is a Pac-man clone. You start the game with three lives. Your goal is to eat up all the healthy vita dots and power pills / vitamins while at the same time gobbling up as many of those pesky demon ghosts as possible to attain the highest score you can. Make your way through as many maps as possible without succumbing. You will be awarded a bonus GPAC once you hit the 10,000 point mark.

Consuming a vitamin pill will turn all the ghosts blue, starting "blue time", which indicates they can be consumed. There are a total of 5 of these power vitamins on each regular map. The length of "blue time" reduces with each successive map, but will be increased directly following a challenge map. When you consume a ghost, it's eyes will return to it's cage and come back to life, where it is temporarily imprisoned. There is a "warp tunnel" on the center left and right portion of most maps. Going through the tunnel will "warp" GPAC as well as the ghosts to the other side of tunnel/screen.

During gameplay, up to two "fruits" may appear directly underneath the ghost cage. You must act quickly since they will disappear after a little while. Also you must hurry to eat up all of the vita dots as their values reduce over time, from 10 points at first, to 5 points, all the way down to 1 point each. Since the ghosts do not follow a strict pattern, it can be difficult to consume them.

Game play is paused after level completion until GPAC is moved. Of course game play is also paused after each GPAC death. Each successive level "ramps" up the difficulty slightly, increasing game speed and the ghosts "intelligence". The background siren sound effect also ramps up.

## **POWER UPS**

In the first couple of maps, GPAC moves around the maze fairly slow. But you can drastically change that by consuming all four ghosts. This will double your speed giving you a huge advantage. The speed boost only lasts until the end of the round or until you lose a GPAC. On the three rounds following completion of the Chaos Fruit Grab challenge, you only need to consume three ghosts to be awarded the speed boost. Likewise on the three maps following the Carpels Tunnel challenge, you only need to consume two ghosts for the speed boost. There is no speed boost awarded in the championship rounds.

## **STRATEGIES / INFO**

One thing you can try in order to consume the evasive ghosts is to "head them off", by attempting to guess what their next move may be. Admittedly, this can be tricky. Another possible strategy for completing the championship maps (maps directly following Dragons Wrath stage), is to eat the vitamin pills, using your blue time to consume the vita dots, rather than the ghosts. Don't go for fruit in the early rounds. Conversely on the championship rounds don't miss the high value fruit.

Your best chance of attaining the speed power up is in the first two rounds. Go for the vitamin pill directly above the ghost cage as soon as play begins to increase your chances.

Avoid rounding the corners when a ghost is on your tail as they will gain on you. The ghosts reverse directions approximately every 50 moves whether or not blue time is enabled. They can also reverse directions after the consumption of the vitamin pill power ups. Ghost eyes sometimes wander off in the wrong direction but most of the time they find their way back. The white ghost is most aggressive in the championship rounds while the pink one is the least aggressive.

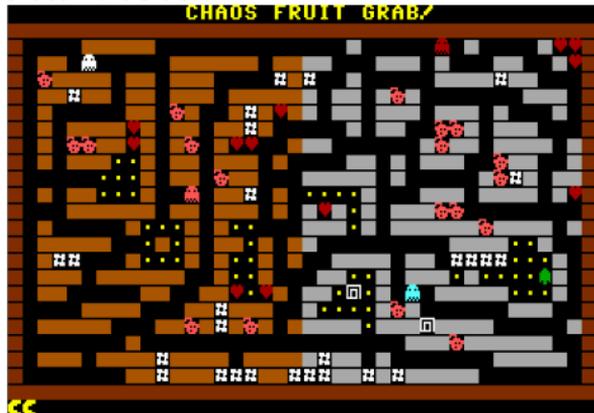
## CHALLENGE MAPS

Rather than re-creating the intermissions present in the original arcade Pac-Man, I thought it would be fun to, instead, have challenge maps. There are a total of three such maps in the game. The first one, titled "Chaos Fruit Grab", starts up following the completion of the first two maps.

The second screen map, "Carpels Tunnel", starts up three maps after the first challenge screen. The name of this map sort of fits with the theme and if you play it long enough, using the keyboard, your hand just might start hurting. The third and final challenge map is titled "Dragon's Wrath". It starts up three maps after the second one. Inspiration was drawn from the Atari 2600 game, Adventure.

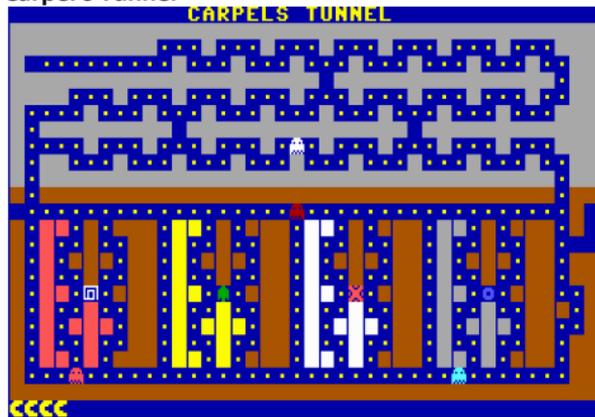
You only have one try on each challenge map. If you fail the challenge, you will not lose any of your available GPACs. However, upon successful completion of the challenge, you will be awarded with a bonus GPAC and a generous point bonus. Complete all three challenge maps and be awarded the "Super Bonus". The background siren is turned off during the challenge screens.

### Chaos Fruit Grab



This is the first challenge screen. You reach this screen after completing the first two maps. Consisting mostly of fruit, no warp tunnels, make your way through this maze to earn the bonus.

## Carpel's Tunnel



You reach this screen three maps after "Chaos Fruit Grab". This one has the four "ET" obelisks, a few high value fruits, and just might give you a hand cramp. The warp tunnel is present.

## Dragons Wrath (Unveiled)



You reach this screen three maps after completing "Carpels Tunnel", although during gameplay the lights are turned off. I really wanted to design more of a maze style map and this is what I came up with. Since you are playing in the dark, it has a much higher degree of difficulty. Therefore you are rewarded with a substantially increased bonus having completed it.

## CONTROLLING THE GAME

The game can be controlled with either the keyboard or joystick in **Port 2**.

Keyboard controls are:

"W" = UP

"Z" = DOWN

"A" = LEFT

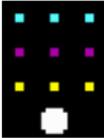
"S" = RIGHT

RUN/Stop = End Game Immediately

The joystick must be oriented with the fire button facing the top/left (Inside joke for retro podcast listeners, I believe started by Atari Bytes podcast). The fire button is not used during game play but, can be used to skip the Intro Screen or to make a selection on the title screen or to start the game. The game is also compatible with Edladdin controllers. In fact, it works great with the Supreme 78. Sounds like an advertisement, I know, but they really are great controllers ([edladdin.com](http://edladdin.com)).

## GAME SCORING

Listed below are the common ways to gain points in the game.

Vitamin Dots / Vitamin Pill	Points
	1 5 10 100

## GAME SCORING - Continued...

Ghosts	Points
	200 400 800 1600

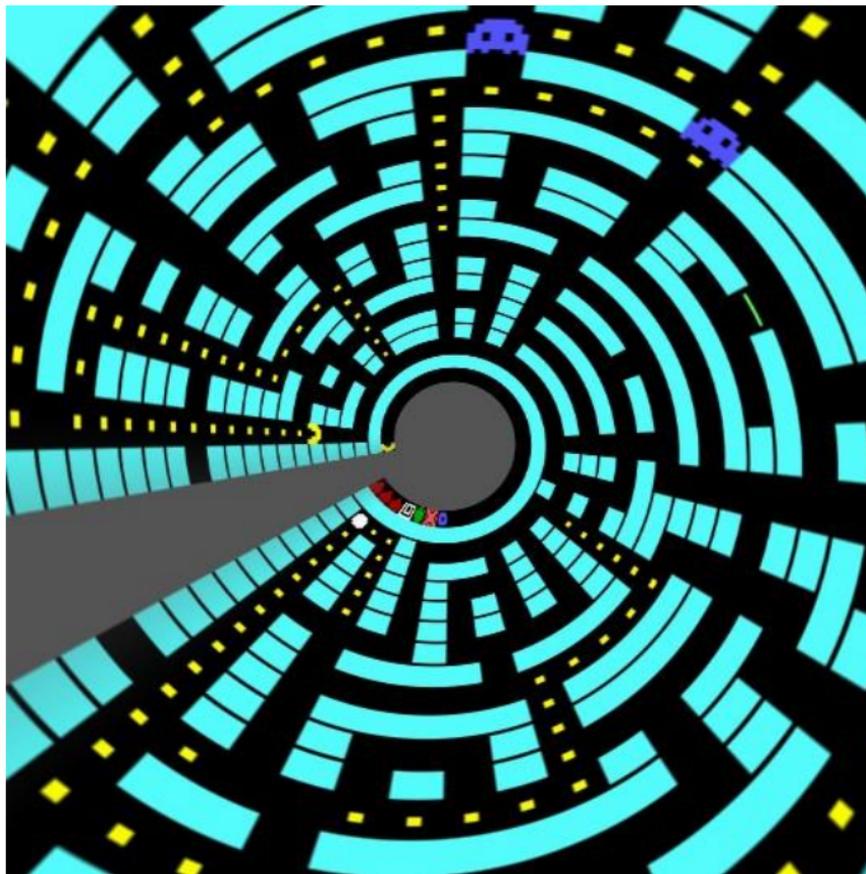
Fruit	Points	Name
	100	Flower
	200	Strawberry
	400	Cherry
	800	Swirl
	1600	Mint
	3200	Taffy
	4000	Grape
	5000	Club

The challenge screens also award bonus points upon completion. Complete **all three** successfully to earn the "Super Bonus"

Bonus Map	Points
Chaos Fruit Grab	10,000
Carpels Tunnel	10,000
Dragon's Wrath	25,000
Super Bonus	50,000

## EASTER EGG

There is one Easter egg in the game (but you know that right -- since you watched the youtube series...).



## CHEATS

There is a built in cheat within the game which will allow you to advance to the next map before consuming all of the Vita dots and fruit. This cheat can be activated by pressing "T" on the keyboard. As a result your high score will have an asterisk next to it. This "taint" will also be in effect if you begin the game on any map past the first one. Should the games attract mode set a high score, the "taint" will also be in effect.



Notice the High score "taint" indicator, the "\*" next to high score.



Likewise notice the "taint" indicator on the title screen for the high score

## BUGS

There are a few bugs/features in the program that were intentionally left in (and probably some unintentionally). The few that come to mind are:

- It is possible to go through the warp tunnel at the same time as a ghost on opposite side and not die or eat the ghost. I reasoned this is a feature of warp tunnels.
- Color clashes are possible with so many different colors in the game. Once such example is: It is possible to eat a ghost while in close proximity to the white ghost which clashes with the yellow score display. On the fastest map, the one with the purple background, anything red is difficult to see. At one point the dots will disappear on this map, but they reappear after a little while (at a lower point value, one point each).
- A slight game play slow down is perceivable when ghost eyes are returning to cage
- Producing a Score above 9,999,999 will not flip over back to zero. I never thought this score would ever be reached. Instead non-numeric characters will be displayed, but game play will continue. At this point you have over completed / destroyed the game, well done indeed. You have defeated dementia.
- There are times when some of the sounds can step on each other, but it is rare. An example of when this may occur is when you consume a fruit at the same time the free man sound plays.
- Timing between beeps when free man sound plays may vary slightly from map to map
- Background siren may rarely start out at the wrong sound level. It also has been observed to have vocal fry at times (in emulation).

## **TECHNICAL INFORMATION:**

This game was developed using the following tools:

Dirmaster

Vice 64 Emulator

Computer running Windows 10

CBM prg Studio cross compiler ([ajordison.co.uk](http://ajordison.co.uk))

80's version was developed on C128 using Merlin 128 Assembler

Intro Theme music created with Sidtracker 64 ([sidtracker64.com](http://sidtracker64.com))

Graphical imagery for box art produced with [picsart.com](http://picsart.com) tool.

## **CREDITS**

Thank you to my wife for helping me produce this manual and box art.

Thank you to Arthur Jordison for putting up with my nonsense questions and providing me with new builds without even asking, multiple times. I couldn't ask for better support than that.

Special thanks to all those that supported me Youtube and Atariage including and Chris++ & Mr SQL.

Inspiration for the box art and cover copy was drawn from the video game SHOTGUN 4-Player Death Match by Christian Gleinser ([shotgun.drwuro.com](http://shotgun.drwuro.com)).

This is a great game, please take the time to check it out.

Thank you to my childhood friends Todd Fisher, and Tony Duckett for keeping me interested in programming back in the day.

## IN CLOSING

I had a blast working on this project. It's hard to explain what it feels like programming on the C64, but it feels great. Over the course of this project, I was able to re-learn the skills I had acquired in the 80's. I was able to learn how to use a great new modern toolset (CBM prg Studio), pretty much inside and out. I re-learned the power of self-modifying code. Through my limited research, I was able to learn how to produce basic sound effects and was even able to produce a small SID tune for the pre-introduction screen, all newly acquired skills. I was also reminded just how time consuming a project like this can be. I hope you enjoy the game!

