Super ABC
Plug-in kit for Pacman or Ms Pacman

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This page is a technical reference for those who own the SUPER ABC kit manufactured by Two Bit Score during the 1990's.

This product is no longer available. Under the terms of an agreement with the copyright holder, NAMCO Ltd., we no longer offer any products which contain their protected software.

Every PACMAN and Ms PACMAN game has the same main circuit board inside.

Over the twenty+ years since it was introduced, several new games have been written to run on the PACMAN main board. It is now possible to remove and discard all of the original program ROMs from the main board and to fit sixteen different versions of the software on one ROM.

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COOL FEATURES

CHOOSE YOUR GAME ON SCREEN

Figure 1 – Main Menu

o   Insert a coin, then use the joystick to select a game.

o   Play the same game continuously, or choose a new game each time.

HIGH SCORE TABLE

Figure 2 - High Score Table

o   Put in your initials if you are in the top ten high scores.

- The high score table is shared by all the games.

- The game remembers the high scores when it is shut off!

BUY-IN FEATURE
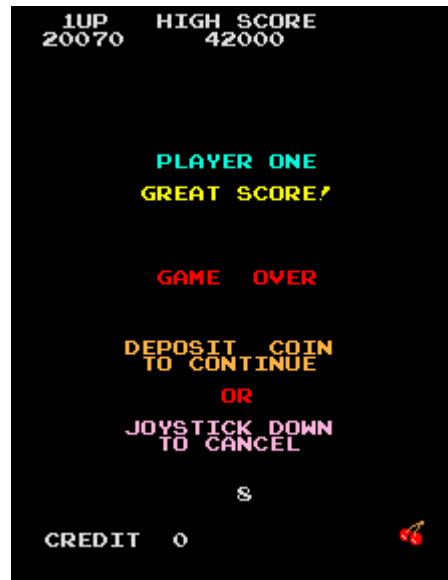
Figure 3 - Continue

- Got a great game going? Choose to continue your game!

- Drop a coin and jump back into the game in the same scene with your full score.

ALL THE BEST GAMES

- Play all your old favorites in their original form. These are not emulations, this is all the original code running on the original game board.

- Play FAST and SLOW versions of all the games.

  The original PACMAN game is referred to as SLOW. Within a few months of it's release, hackers had figured out how to change a few bytes of code to make the yellow PACMAN character move twice as FAST, while the bad guys went the same old speed. This SPEED-UP option is one of the most popular programs of all times, and almost every arcade game has this FAST version installed. You can play it BOTH WAYS!

PACMAN

Figure 4 - Pac-man

The yellow guy in his first incarnation. Eat the dots and avoid the ghosts while gobbling fruit and power pellets.

MS. PACMAN

Figure 5 - Ms. Pac-man

Featuring a female Pac, Ms. Pacman provides additional mazes, moving fruit, and smarter ghosts!

PAC ATTACK

Figure 6 - Pac Attack

In this popular version, Pacman's mazes get changed. On higher levels, eating a power pellet can erase the maze!

MS. PAC ATTACK
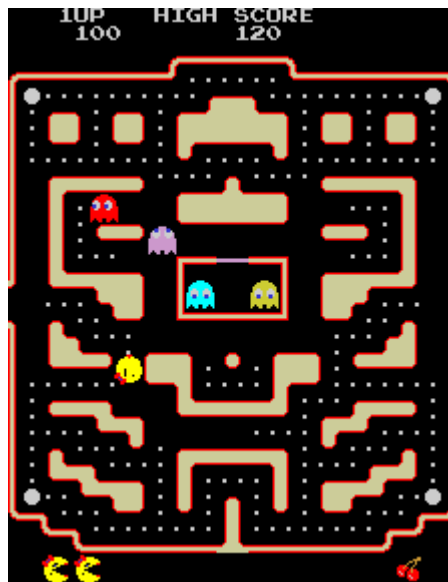
Figure 7 - Ms. Pac Attack

A new set of mazes to drive players crazy!

PACMAN PLUS
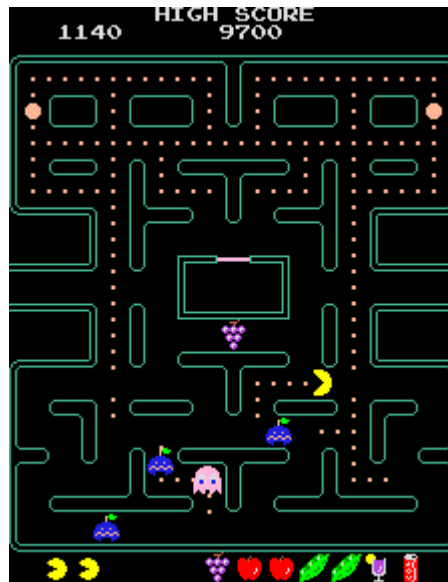
Figure 8 - Pac-man Plus

Not just a graphic update to PACMAN; in this challenging game the ghosts are faster and smarter. On higher levels, eating a pellet may not turn all the ghosts blue, and sometimes hides the maze for a time! However, eating a fruit will scare the ghosts and allow players to score up to 3200 points eating them!

MS. PACMAN AFTER DARK
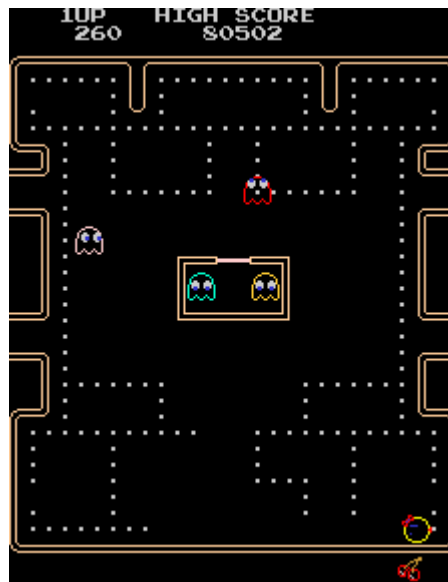
Figure 9 - Ms. Pac-man After Dark

Everything's lit up like a neon sign except the maze! You'll have to remember your MS. PACMAN mazes to make it through safely. The ghosts are worth more points this time, however.

ULTRA PACMAN
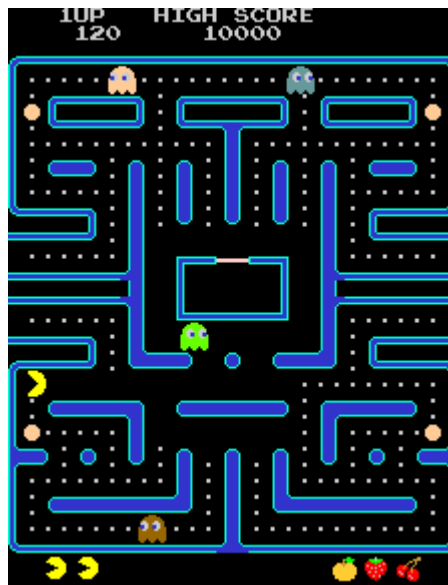
Figure 10 - Ultra Pac-man

A faster, harder, more challenging PACMAN. Multiple mazes will challenge even the greatest of PACMAN wizards. A special fruit which rarely appears awards the player with a free credit!

PIRANHA

Figure 11 - Piranha

A popular kit among operators in the early 80s, this time the player controls a hungry piranha chased by squid!

High Score or Continue
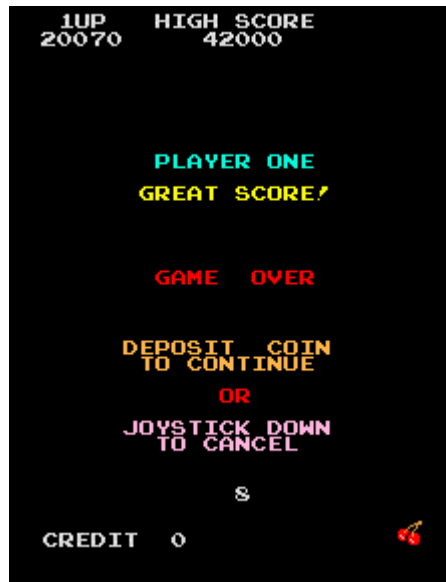
Figure 12 - Continue

Think you have a shot at the high score table? CONTINUE!

High Score Table

Figure 13 - High Score Table

At the end of the game, the player will be asked to enter their initials if their score is one of the ten highest scores ever.

Diagnostic Mode

Figure 14 - Diagnostics

Got a problem with your cabinet wiring or joystick switches?
Enter the diagnostic mode!

Bookkeeping

Figure 15 - Bookkeeping

Need to know how many coins should be in the coin box?
Check the bookkeeping page!

This is a simple plug-in kit which will resurrect many dead Pacman circuit boards. If your game crashes because the ROMs are old and the legs are rusting off them or the ribbon cable has become brittle, THROW THEM ALL AWAY! This kit takes advantage of advances in technology to replace them all with a small circuit board which plugs into sockets which are already on your main game board. No more ribbon cable, no more satellite board. And no more 285 SYNC BUSS CONTROLLER card; it's functions are included in the SUPER ABC!

The SUPER ABC kit sells for $269. and includes
Super ABC Installation Instructions

Take a look at the SUPER ABC kit:
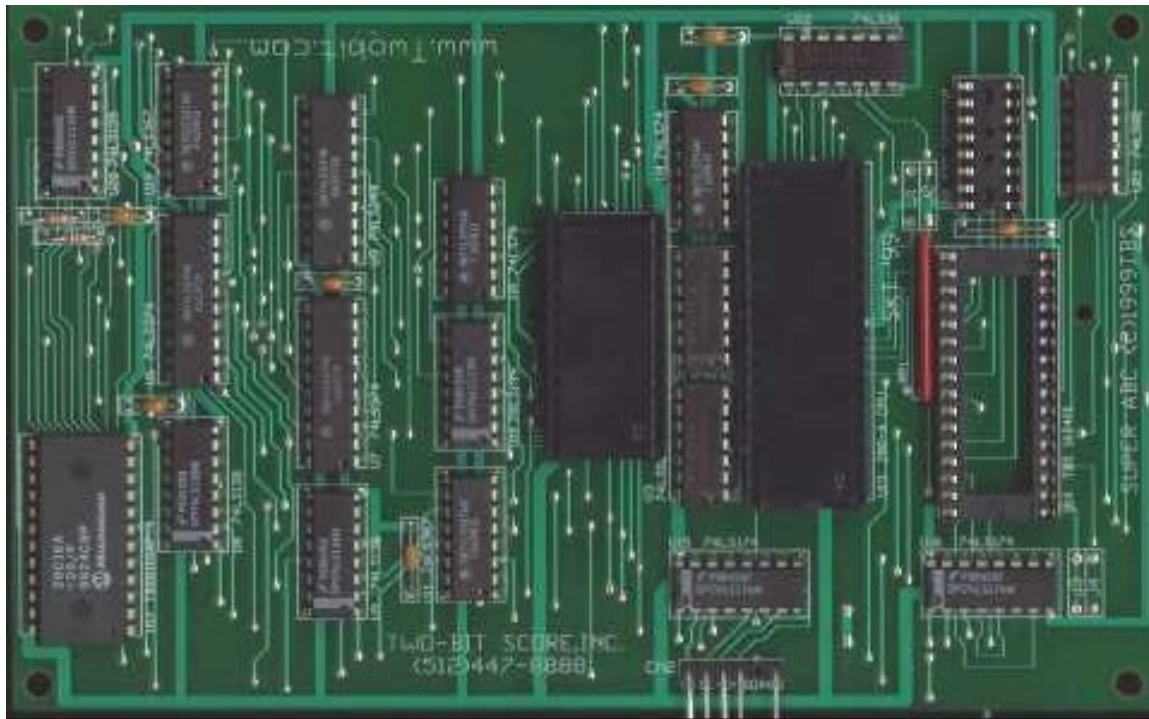
Figure 16 - Super ABC kit main board

Features

- High score table saved in non-volatile RAM. Scores remain in NVRAM memory even after the game is shut off WITHOUT an external battery!

- Speed selection allows youngsters to play a slower game while masters can test their reflexes on the fast mode.

- Attract mode cycles through all games to avoid monitor burn-in!

- Installation takes just minutes following our Super ABC Installation Instructions Or send us your main board for free installation!

- Game variety brings players back.

- BUY-IN feature really keeps them playing for that high score!

- Variations on a game ANYONE can play!

- No ribbon cables to go bad or get in the way - our board plugs directly onto your PACMAN or MS. PACMAN circuit board!

- Incredible TEST MODE built in! Graphical user interface displays all the switches in your cabinet and shows whether they are open or closed. Automatically tests the RAM chips on the main game board and reports the results. Shows DIP switch condition and logical results. Allows you to reset the high score table and bookkeeping RAM. *See Figure 17, below*

Figure 17 - Test Mode

Super ABC Installation Instructions

Congratulations on your purchase of the Super ABC kit from **TWO-BIT SCORE**. This kit is designed to plug directly into any original Midway PACMAN or MS. PACMAN circuit board. Once installed, the main board will no longer use the game ROMS located at 5E, 5F, 6E, 6F, 6H, and 6J (and, if provided, 6L, 6M, 6N, or 6P), or the '285' Sync Buss Controller card located at location 6D.

Please read the following instructions THOROUGHLY **and** COMPLETELY **before sitting down to work. The only tools necessary to install the kit are a flat surface on which to work, a piece of cardboard to place under the game board, and the chip-pulling tool provided. Always use the chip puller to remove chips, NOT a screwdriver or other pointed instrument. An ordinary pair of nail clippers may be useful to cut off the old ty-wrap in step two.**

- **STEP ONE:** Unplug the edge connector from the top of your PACMAN or MS. PACMAN circuit board, and remove it from the cabinet. Place it on a piece of CLEAN CARDBOARD on a firm, flat work surface.

- **STEP TWO:** Locate and carefully remove the small square circuit board at location 6D on the main board. This board is labeled "Z-80 SYNC BUSS CONTROLLER" and is strapped to the main board with a plastic ty-wrap. The ty-wrap must be carefully cut so as to avoid cutting any traces on the main board. This is easily accomplished with an ordinary pair of nail clippers. Set this small board aside. It is no longer used as its function is included in the Super ABC.

- **STEP THREE:** Using the chip puller provided, remove any ROMs from the main board at locations 6E, 6F, 6H, and 6J. They are no longer used. *Note: if your board has sockets added at 6K & 6L, pull the chips out of them and cut any jumper wires that may be soldered from the chips to the board!*

- **STEP FOUR:** Using the chip puller, remove the two bipolar PROMs from their sockets at locations 4A & 7F. Install the **NEW** 4A & 7F (supplied) into their appropriate locations on the board, making sure the polarity notch on each chip is facing in the same direction as all of the other chips on the board.

- **STEP FIVE:**

  o *PACMAN boards:* **CAREFULLY** remove the Z-80 processor chip from the 40 pin socket at location 6B on the main game board.

  o *MS. PACMAN boards:* Unplug the ribbon cable from location 6B on the main game board and then **CAREFULLY** remove the Z-80 processor chip from the 40 pin socket at location U4 on the small daughterboard at the other end of the ribbon cable. Set the daughterboard and cable aside as they are no longer used.

- **STEP SIX:** Plug the Z-80 into the empty 40 pin socket on the Super ABC board, being certain the polarity notch matches the direction of the other chips on the board.

- **STEP SEVEN:** Make sure your cardboard sheet is in place under the game board and **CAREFULLY** insert the Super ABC board into the sockets on the main board at locations 6B & 6D. Make sure **ALL** the pins line up properly before inserting. Then, placing your palm over the two sockets, press down firmly to seat the board. You may have to put quite a bit of weight on it to get it to go all the way in. When finished, the Super ABC circuit board should be FLAT and PARALLEL with the main game board. Use the tywraps provided to secure the Super ABC board to the game board. They should pass through three holes; two on the Super ABC, one on the main game board.

- **STEP EIGHT:** Remove the character ROM chips at locations 5E & 5F and set them aside. They are no longer used.

- **STEP NINE:** As with the Super ABC board, **CAREFULLY** insert the Character ROM board into locations 5E & 5F on the main board, being certain that the notch on the 5E-5F character chip faces in the same direction as the notch on all the chips on the main board. Once properly lined up, press down firmly to seat it well.

- **STEP TEN:** Connect the 5-wire harness between the 5E-5F Character ROM board and the Super ABC board. **If this cable is not installed you will have a BLACK SCREEN.**

- **STEP ELEVEN:** Locate the 74LS161 chip at location 3R on your game board. IF IT IS IN A SOCKET, replace it with the new 74LS161 provided in the kit. If it is soldered down, it is not necessary to replace it.

- **STEP TWELVE:** Check your DIP switch settings against the chart below and return your game board to the cabinet.

Troubleshooting

The game seems to be running, but all I see are blocks (or distorted characters) moving around!

- The Character ROM board isn't seated firmly or properly. Ensure that all the pins are lined up properly and the board is inserted facing the right way. Try pushing it down a little harder.

On power up, the game fails to come up to the attract mode screen. It may have garbage frozen or flashing on the screen.

- The Super ABC board either isn't in tight enough or isn't in properly. Make sure that all of the pins are lined up and try a firm push. Be certain that dip switch 8 is turned off.

The game runs, but the only game I can play is Slow PACMAN!

- The NVRAM at location U17 has failed. Contact TWOBIT.COM

How do I clear the high score table and check the bookkeeping?

- Enter test mode via the cabinet switch located near the coin door hinge. Then hold the ONE PLAYER DOWN and ONE PLAYER START switches simultaneously for approximately 7 seconds and follow the on-screen directions.

DIP Switch Settings

Note concerning DIP SWITCH #6: During the game ULTRA PACMAN there is a rare 'butterfly' which appears. Eating the butterfly awards the player either an extra man or an extra credit depending on the setting of DIP switch #6. DIP SWITCH #6 ALSO turns the BUY-IN feature ON and OFF.

Option (* = recommended)	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Free Play	ON	ON						
1 Coin 1 Credit *	OFF	ON						
1 Coin 2 Credits	ON	OFF						
2 Coins 1 Credit	OFF	OFF						
1 Pacman Per Game			ON	ON				
2 Pacman Per Game			OFF	ON				
3 Pacman Per Game *			ON	OFF				
5 Pacman Per Game			OFF	OFF				
Bonus Player @ 10000 Pts *					ON	ON		
Bonus Player @ 15000 Pts					OFF	ON		
Bonus Player @ 20000 Pts					ON	OFF		
No Bonus Players					OFF	OFF		
Free Game in ULTRA PAC / Buy-in ON *						ON		
Free Life in ULTRA PAC / Buy-in OFF						OFF		
Auto. Rack Advance (Skip)							ON	
Normal- Must be off for game play *							OFF	
Freeze Video (Pause)								ON
Normal- Must be off for game play *								OFF

Table 1 - DIP Switch Settings

Help

If you have any problems installing this kit, or your game should fail to work at any time in the future, simply put your complete game board in a box with a note describing the problem and send it to us at the address below. We offer free repair estimates and stock replacement parts for your game cabinet and circuit board.

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Super ABC Settings and Instructions

DIP Switch Settings

Option (* = recommended)		SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Free Play		ON	ON						
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1 Coin 2 Credits		ON	OFF						
2 Coins 1 Credit		OFF	OFF						
1 Pacman Per Game				ON	ON				
2 Pacman Per Game				OFF	ON				
3 Pacman Per Game	*			ON	OFF				
5 Pacman Per Game				OFF	OFF				
Bonus Player @ 10000 Pts	*					ON	ON		
Bonus Player @ 15000 Pts						OFF	ON		
Bonus Player @ 20000 Pts						ON	OFF		
No Bonus Players						OFF	OFF		
Free Game in ULTRA PAC / Buy-in ON	*						ON		
Free Life in ULTRA PAC / Buy-in OFF							OFF		
Auto. Rack Advance (Skip)								ON	
Normal- Must be off for game play	*							OFF	
Freeze Video (Pause)									ON
Normal- Must be off for game play	*								OFF

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Clearing the high score table and checking the bookkeeping

Enter test mode via the cabinet switch located near the coin door hinge. Then hold the ONE PLAYER DOWN and ONE PLAYER START switches simultaneously for approximately 7 seconds and follow the on-screen directions.