Cart Information

Info about cart sizes and bankswitching methods

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This text has been modified to be machine-readable by Bankzilla's database generator. This includes the '####Data Start####' and '####Data End####' flags, as well as including an 'overflow' category and including controller type.

How Bankswitching Works

Bankswitching allows game programmers to include more data into a cartridge, therefore making (hopefully) a better game with more graphics/ levels.

Bankswitching works under similar principals in all cases. Basically, by reading a certain location in ROM switches banks.

(this is the F8-style of bankswitching)

Bank #1	Bank #2
1000 JSR \$1800 (do subroutine) 1003 (program continues)	1200 _subroutine goes here_ 1209 RTS
1800 LDA \$1FF9 (switch to bank 2) 1803 NOP 1804 NOP 1805 NOP 1806 NOP	1802 (rest of program) 1803 JSR \$1200 1806 LDA \$1FF8 (Switch back to bank 1)
1807 NOP 1808 NOP 1809 RTS (We're done w/ routine)	1809 (rest of program)

OK, we start out in bank #1 and we want to run a subroutine in bank #2.

What happens is this- the processor starts at 1000h in bank #1. We call our subroutine from here. 1800h: We do a read to change us to bank #2. Remember that when we change banks, we are basically doing a ROM swap. (You can think of bankswitching as 'hot-swapping' ROMs) Now that we're in bank #2, the processor sees that JSR to \$1200, which is the subroutine that we wanted to execute. We execute the subroutine and exit it with an RTS. This brings us back to 1806h. We then do another read to select bank #1. After this instruction finishes, the processor is now in bank #1, with the program counter pointing to 1809, which is an RTS which will take us back to 1003 and let us continue on with our program.

Extra RAM in Carts

Some carts have extra RAM; There are three known formats for this:

Atari's 'Super Chip' is nothing more than a 128-byte RAM chip that maps itsself in the first 256 bytes of cart memory. (1000-10FFh) The first 128 bytes is the write port, while the second 128 bytes is the read port. This is needed, because there is no R/W line to the cart.

CBS RAM Plus (RAM+) This maps in 256 bytes of RAM in the first 512 bytes of the cart; 1000-11FF. The lower 256 addresses are the write port, while the upper 256 addresses are the read port. To store a byte and retrieve it:

LDA #\$69 ; byte to store

STA \$1000 ; store it

.

; rest of program goes here

LDA \$1100 ; read it back

; acc=\$69, which is what we stored here earlier.

M-network (AFAIK it has no name)

OK, the RAM setup in these carts is very complex. There is a total of 2K of RAM broken up into 2 1K pieces. One 1K piece goes into 1000-17FF if the bankswitch is set to \$1FE7. The other is broken up into 4 256-byte parts.

You select which part to use by issuing a fake read to 1FE8-1FEB. The RAM is then available for use by all banks at 1800-19FF.

Similar to other schemes, 1800-18FF is write while 1900-19FF is read. Low RAM uses 1000-13FF for write and 1400-17FF for read.

Note that the 256-byte banks and the large 1K bank are seperate entities. The M-Network carts are about as complex as it gets.

Descriptions of the Various Bankswitch Modes

-These carts are not bankswitched, however the data repeats twice in the 4K address space. You'll need to manually double-up these images to 4K if you want to put these in say, a 4K cart.

4K:

-These images are not bankswitched.

6K:

-AR: The Arcadia (aka Starpath) Supercharger uses 6K of RAM to store the games loaded from tape.

8K:

- -F8: This is the 'standard' method to implement 8K carts. There are two addresses which select between two unique 4K sections. They are 1FF8 and 1FF9. Any access to either one of these locations switches banks. Accessing 1FF8 switches in the first 4K, and accessing 1FF9 switches in the last 4K. Note that you can only access one 4K at a time!
- -FE: Used only on two carts (Robot Tank and Decathlon). You select banks via accesses to the stack. You set the stack pointer to FF, and then a JSR switches banks one way, while RTS switches you back to the original bank (both banks are 4K). This allows the programmers to perform 'automatic' bankswitching. All the subroutines are in one bank, while all the game code is in another. When you perform a JSR; you switch banks to the bank containg the subroutines. Upon encoutering an RTS, the bank is switched back to the original calling bank. Pretty spiffy!
- -E0: Parker Brothers was the main user of this method. This cart is segmented into 4 1K segments. Each segment can point to one 1K slice of the ROM image. You select the desired 1K slice by accessing 1FE0 to 1FE7 for the first 1K (1FE0 selects slice 0, 1FE1 selects slice 1, etc). 1FE8 to 1FEF selects the slice for the second 1K, and 1FF0 to 1FF8 selects the slice for the third 1K. The last 1K always points to the last 1K of the ROM image so that the cart always starts up in the exact same place.
- -3F: Tigervision was the only user of this intresting method. This works in a similar fashion to the above method; however, there are only 4 2K segments instead of 4 1K ones, and the ROM image is broken up into 4 2K slices. As before, the last 2K always points to the last 2K of the image. You select the desired bank by performing an STA \$3F instruction. The accumulator holds the desired bank number (0-3; only the lower two bits are used). Any STA in the \$00-\$3F range will change banks. This appears to interfere with the TIA addresses, which it does; however you just use \$40 to \$7F instead! :-) \$3F does not have a corresponding TIA register, so writing here has no effect other than switching banks. Very clever; especially since you can implement this with only one chip! (a 74LS173)

12K:

-FA: Used only by CBS. Similar to F8, except you have three 4K banks instead of two. You select the desired bank via 1FF8, 1FF9, and 1FFA. These carts also have 256 bytes of RAM mapped in at 1000-11FF. 1000-10FF is the write port while 1100-11FF is the read port.

- -F6: The 'standard' method for implementing 16K of data. It is identical to the F8 method above, except there are 4 4K banks. You select which 4K bank by accessing 1FF6, 1FF7, 1FF8, and 1FF9.
- -E7: Only M-Network used this scheme. This has to be the most complex method used in any cart! :-) It allows for the capability of 2K of RAM; although it doesn't have to be used (in fact, only one cart used it-Burgertime). This is similar to the 3F type with a few changes. There are now 8 2K banks, instead of 4. The last 2K in the cart always points to the last 2K of the ROM image, while the first 2K is selectable. You access 1FE0 to 1FE6 to select which 2K bank. Note that you cannot select the last 2K of the ROM image into the lower 2K of the cart! Accessing 1FE7 selects 1K of RAM at 1000-17FF instead of ROM! The 2K of RAM is broken up into two 1K sections. One 1K section is mapped in at 1000-17FF if 1FE7 has been accessed. 1000-13FF is the write port, while 1400-17FF is the read port. The second 1K of RAM appears at 1800-19FF. 1800-18FF is the write port while 1900-19FF is the read port. You select which 256 byte block appears here by accessing 1FF8 to 1FFB.

32K

-F4: The 'standard' method for implementing 32K. Only one cart is known to use it- Fatal Run. Like the F6 method, however there are 8 4K banks instead of 4. You use 1FF4 to 1FFB to select the desired bank.

64K

-F0: Only used one cart, AFAIK. (the 'Megaboy' cart from Dynacom) It has 16 4K banks. Accessing 1FF0 will increment the current bank. The program uses location 1FEC to tell it which bank it's in. There's a little loop at 1FE0 that checks this location against the accumulator, and if they're equal it does an RTS. Otherwise it does an STA 1FF0 and repeats the loop.

```
KEY
Name
        - Game Name
Part #
         - Part Number of the actual cart
         - Rarity, according to VGR's guide and my observations
SZ
         - Size of the ROM image in K
SC
            If the cart has a Special Chip
         - Bankswitch method used (see below)
BS
IM
           'X'ed if I have the image
SP
         - Special Attribute (See the end of a section for details)
         - Controller type (See below)
\mathsf{CT}
Filename - The filename of the ROM image
                            Bankswitch Types:
                    (See above for full descriptions)
   - (nothing); Not bankswitched (2K and 4K only)
F8 - 'Standard' 8K; uses 1FF8 and 1FF9
F6 - 'Standard' 16K; uses 1FF6 to 1FF9
```

```
F4 - 'Standard' 32K; uses 1FF4 to 1FFB
F0 - Megaboy 64K; uses 1FF0 to increment bank #
SC - Superchip; 128 bytes of RAM @ 1000-10FF (i.e. F8+SC, F4+SC)
FA - 'RAM+' 12K; uses 1FF8 to 1FFA; 256 bytes of RAM @ 1000 to 11FF
FE - 'Activision' 8K; uses 01FE and 01FF to determine bank
E0 - 'Parker Brothers' 8K; uses 1FE0 to 1FF7
E7 - 'M-Network' 16K; Uses 1FE0 to 1FE7 and 2K of RAM at 1800-19FF
3F - 'Tigervision' 8K; Uses STA $3F to determine bank #
AR - 'Arcadia' 6K; Used on the Supercharger
?? - Unknown at this time
                           Controller Types:
   - (nothing); Unknown at this time
 J - Joystick
 P - Paddles
 K - Keypad
JK - Joystick and keypad (Star Raiders)
 D - Driving Controllers
 B - Joystick plus Booster Grip (Omega Race)
 T - Track & Field controller
 0 - Other
 L - Light Gun
      I have added two new categories to the rarity rating:
PR - This was only available as a prototype
DM - This image is only a demo, and not really a game
```

Hot Wants (that I know I probably won't get :-)

```
Tempest
                                  (Atari)
Good Luck, Charlie Brown
                                  (Atari)
Miss Piggy's Wedding (exists?)
                                  (Atari)
Wizard
                                  (Atari)
BMX Airmaster (atari ver)
                                  (Atari)
White Water Madness (exists?)
                                  (Atari)
Rodeo
                                  (Atari)
Rabbit Transit
                                  (Atari)
Nightmare Manor
                                  (Atari)
Pink Panther
                                  (Probe 2000)
The Impossible Game
                                  (Telesys)
Ewoks Adventure
                                  (Parker Bros)
Thwoker
                                  (Activision)
Out of Control
                                  (Avalon Hill)
Berenstein Bears
                                  (Coleco)
Video Life
                                  (Commavid)
Aerial Ace (exist?)
                                  (Imagic)
Lady in Wading
                                  (Playaround)
```

Snowplow (Sunrise)
Noah and the Ark (Sunrise)
Meltdown (exist?) (20th cent.)
Tomarc the Barabrrian (exist?) (Xonox)
Motocross Racer (exist?) (Xonox)

Anything by Action Hi-tech

####Data Start###

******	<****************	*****
*	Atari	*
******	******	******

[If SC is marked, cart uses a 'Super Chip'; aka CO20231]

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Combat	CX2601	C	2			Χ		J	COMBAT
Air-Sea Battle	CX2602	U	2			Χ		J	AIR_SEA
Star Ship	CX2603	R	2			Χ			STARSHIP
Space War	CX2604	U	2			Χ		_	SPACEWAR
Outlaw	CX2605	U	2			Χ		J	OUTLAW
Slot Racers	CX2606	U	2			Χ			SL0TRACE
Canyon_Bomber	CX2607	U	2			Χ		_	CANYONB
Super Breakout	CX2608	U	4			Χ		Р	SUPERB
Defender	CX2609	C	4			Χ		J	DEFENDER
Warlords	CX2610	U	4			Χ		Р	WARLORDS
Indy 500	CX2611	U	2			Χ		D	INDY_500
Street Racer	CX2612	U	2			Χ			STRTRACE
Adventure	CX2613	C	4			Χ		J	ADVNTURE
Steeple Chase	CX2614	NR	2			Χ		Р	STEPLCHS
Demons to Diamonds	CX2615	U	4			Χ			DEMONDIM
Hot Rox	CX2615	NR	4			Χ			DEMONDIM
Pele's Soccer	CX2616	C	4			Χ			PELE
Backgammon	CX2617	U	4			Χ			BACKGAM
3D- Tic-Tac-Toe	CX2618	U	2			Χ		J	3D_TIC
Stellar Track	CX2619	NR	4			Χ			STELRTRK
BASIC Programming	CX2620	R	4			Χ		Κ	BASIC
Video Olympics	CX2621	C	2			Χ		Р	VID_OLYM
Breakout	CX2622	C	2			Χ		Р	BREAKOUT
Homerun	CX2623	C	2			Χ			H0MERUN
Basketball	CX2624	C	2			Χ			BASKETBL
Football	CX2625	C	2 2			Χ			F00TBALL
Minature Golf	CX2626	U	2			Χ			MIN_GOLF
Human Cannonball	CX2627	U	2			Χ			HUMAN CB
Bowling	CX2628	C	2			Χ		J	BOWLING
Sky Diver	CX2629	U	2			Χ			SKYDIVER
Circus Atari	CX2630	C	4			Χ		Ρ	CIRCATRI
Superman	CX2631	C	4			Χ		J	SUPRMAN1

		_	_			_	
Space Invaders	CX2632	C	4		Χ	J	SPCINVAD
Night Driver	CX2633	C	2		Χ		NIGHTDRV
Golf	CX2634	C	2		Χ		G0LF
Maze Craze	CX2635	U	4		Χ	J	MAZECRZ
Video Checkers	CX2636	R	4		Χ	J	CHECKERS
Dodge 'Em	CX2637	U	4		Χ		DODGE EM
Missile Command	CX2638	Č	4		X	J	MISSCOMM
Othello	CX2639	R	2		Χ	J	OTHELLO
			8	F8			
Realsports Baseball	CX2640	Ū		ГО	X	-	RS_BASEB
Surround	CX2641	C	2		X	J	SURROUND
A Game of Concentration	CX2642	C	2		Х		CONCENTR
Code Breaker	CX2643	U	2		Χ		CODEBRK
Flag Capture	CX2644	U	2		Χ		FLAGCAP
Video Chess	CX2645	U	4		Χ		VIDCHESS
Pac-Man	CX2646	C	4		Χ	J	PACMAN
Submarine Commander	CX2647	PR	4		Χ	J	SUBCOMDR
Video Pinball	CX2648	U	4		Χ	J	VIDPIN
Asteroids	CX2649	С	8	F8	Χ	J	ASTEROID
Berzerk	CX2650	Č	4		Χ	j	BERZERK
Blackjack	CX2651	Ř	2		X	J	BLACK J
Casino	CX2652	Ü	4		X		CASINO
Slot Machine	CX2653	R	2		X		SLOTMACH
	CX2654	C	4		X	1	
Haunted House						J	HAUNTHSE
Yar's Revenge	CX2655	C	4	50	X	J	YAR_REV
Swordquest Earthworld	CX2656	C	8	F8	Χ	J	SQ_EARTH
Swordquest Fireworld	CX2657	C	8	F8	Χ	J	SQ_FIRE
Math Gran Prix	CX2658	C	4		Χ	J	MATH_GPX
Raiders of the Lost Ark	CX2659	C	8	F8	Χ	J	RAIDERS
Star Raiders	CX2660	U	8	F8	Χ	JK	STARRAID
Basic Math	CX2661	C	2		Χ	J	BASMATH
Hangman	CX2662	U	4		Χ	J	HANGMAN
Road Runner	CX2663	ER	16	F6	Χ	J	ROADRUNR
Brain Games	CX2664	U	2		Χ		BRAINGMS
Frog Pond	CX2665	PR	8	F8	Χ	J	FROGPOND
Realsports Volleyball	CX2666	U	4		Χ	_	RS VOLLY
Realsports Soccer	CX2667	Ü	8	F8	X		RSSOCCER
Realsports Football	CX2668	Č	8	F8	X		RS FOOTB
Vanguard	CX2669	C	8	F8	X		VANGUARD
		_		10	X	1	
Atari Video Cube	CX2670	R	4	го		J	VIDCUBE
Swordquest Waterworld	CX2671	UR	8	F8	Χ	J	_SQ_WATER
Swordquest Airworld	CX2672	NR	??				Exist
Phoenix	CX2673	C	8	F8	Х	J	PHOENIX
E.T. The Extra-Terrestrial		C	8	F8	Χ	J	E_T
Ms. Pac-Man	CX2675	C	8	F8	Χ	J	MSPACMAN
Centipede	CX2676	C	8	F8	Χ	J	CENTIPED
Dig Dug	CX2677	U	16	X F6	Χ	J	DIGDUG
Dukes of Hazzard	CX2678	PR	16	F6	Χ	J	DUKES
Realsports Basketball	CX2679	NR	??	No Kn	own	Copies	Exist
Realsports Tennis	CX2680	U	8	F8	Χ	· J	RSTENNIS
Battlezone	CX2681	Ū	8	F8	Χ	Ĵ	BATLZONE
Krull	CX2682	R	8	F8	X	j	KRULL
Crazy Climber	CX2683	ER	8	F8	Χ	J	CRAZCLMB
Galaxian		U	8	F8	X	j	
	CX2684						GALAXIAN
Gravitar	CX2685	U	8	F8	X	J	GRAVITAR
Quadrun	CX2686	ER	8	F8	X	<u>.</u>	QUADRUN
Tempest	CX2687	PR	??	A Few			
Junglehunt	CX2688	U	8	F8	Х	J	JNGLHUNT
Kangaroo	CX2689	U	8	F8	Χ	J	KANGAR00

Pengo	CX2690	ER	8		F8	Χ		J	PENG0
Joust	CX2691	C	8		F8	X		J	JOUST
Moon Patrol	CX2692	Ü	8		F8	X		Ĵ	MOONPTRL
Food Fight	CX2693	NR	??						Exist
Pole Position	CX2694	C	8		F8	Χ		J	POLEPSN
Xevious	CX2695	PR	8		F8	Χ		J	XEVIOUS
Asterix	CX2696	ER	8		F8	Χ		J	ASTERPAL
Mario Bros.	CX2697	U	8		F8	Χ		J	MARIOBRO
Rubik's Cube	CX2698	ER	4			Χ		J	RUBIKS
Taz	CX2699	R	8		F8	X		J	TAZ
Oscar's Trash Race	CX26101	R	8		F8	X		K	OSCAR
Cookie Monster Crunch	CX26102	R	8		F8	X		K	COOKMONS
Alpha-Beam with Ernie	CX26103	R	8		F8	X		K	ALPHBEAM
Big Bird's Egg Catch	CX26104	R	8		F8	Χ		K	EGGCATCH
3-D Asteroids	CX26105	NR	??		го	V			CDOVED
Grover's Music Maker Snow White	CX26106	PR	8 ??		F8	Χ			GROVER
	CX26107 CX26108	NR PR	۲۲ 8		F8	Х		,	DDIICKCDT
Donald Duck's Speedboat	CX26106	R	8		F8	X		J J	DDUCKSBT SORCAPRN
Sourcerer's Apprentice Crystal Castles	CX26109 CX26110	U	0 16	Х	F6	X		J	XTALCAST
Snoopy and the Red Barron	CX26110	R	8	^	F8	X		J	SNOOPY
Good Luck; Charlie Brown	CX26111	PR	??	[_	Proto	Evic	-	
Miss Piggie's Wedding	CX26112	UR	??	,	UIIE	11000	LVI		
Pigs in Space	CX26114	ER	8		F8	Χ		J	PIGSPACE
Dumbo's Flying Circus	CX26115	PR	8		F8	X		J	DUMBO N
Galaga	CX26116	NR	??			^		•	DOI 100_11
Obelix	CX26117	ER	8		F8	Χ		J	OBELIX
Millipede	CX26118	R	16	Χ	F6	X		Ĵ	MILLIPED
Saboteur	CX26119	PR	8		F8	X		Ĵ	SAB0TEUR
Star Gate	CX26120	U	8	Χ	F8	Χ		J	STARGATE
Defender][CX26120	R	8	Χ	F8	Χ		J	DEFENDR2
Zookeeper	CX26121	NR	??						
Sinistar	CX26122	PR	8		F8	Χ		J	SINISTAR
Jr. Pac-Man	CX26123	U	16	Χ	F6	Χ		J	JRPACMAN
Choplifter	CX26124	NR	??						
Track & Field	CX26125	R	16		F6	Χ		Τ	TRACK
Elevator Action	CX26126	NR	??						
Gremlins	CX26127	ER	8		F8	Χ		J	GREMLINS
Boing	CX26128	NR	??					_	
Midnight Magic	CX26129	R	16		F6	Χ		J	MIDNIGHT
Honker Bonker	CX26130	NR	??			.,			
Monstercise	CX26131	PR	8		F8	Χ			MONS
Garfield	CX26132	NR	??		го	V		,	A T F A M
The A-Team	CX26133	PR	8		F8	Χ		J	ATEAM
The Last Starfighter Star Raiders][CX26134	NR NR	?? ??						
Realsports Boxing	CX26134 CX26135	U	16		F6	Χ		1	RSB0XING
Solaris	CX26135	U	16		F6	X		J J	SOLARIS
Peek-A-Boo	CX26130	PR	4		10	X		J	PEEKAB00
Super Soccer	CX26137	NR	??			^			I LLINADOU
Crossbow	CX26130	U	16		F6	Χ		J	CROSSBOW
Desert Falcon	CX26140	C	16	Χ	F6	X		J	DSRTFALC
Motor Psycho	CX26141	NR	??	^	. 0	^		5	DSINTIALE
Crack'ed	CX26142		??						
Donkey Kong	CX26143	U	4			Х		J	DK
Donkey Kong Jr.	CX26144	Ř	8		F8	X		Ĵ	DKJR
Venture	CX26145	R	4		-	X		Ĵ	VENTURE
Mousetrap	CX26146	R	4			Χ		J	MOUSETRP

Frogger Turbo	CX26147 CX26148 CX26149	NR NR	4 ??			Х		J	FROGGER
Zaxxon Q*Bert Dark Chambers	CX26150 CX26151	NR R U	?? 4 16	Х	F6	X X	Х3	J J	QBERT_PB DARKC
Super Baseball Super Football	CX26152 CX26154	U U	16 16	Х	F6 F6	X X		J J	SUPBBALL SPRF00TB
Sprintmaster	CX26154	R	16	X	F6	X		J	SPRNMAST
Combat II (Wizard?)	CX26156	NR	??	^	. 0	^		J	311((1)(3)
(,	CX26157		??						
Surround II	CX26158	NR	??						
Double Dunk	CX26159	R	16		F6	Χ		J	DOUBDUNK
	CX26160		??						
5 B	CX26161		??		- 4	.,		-	EATAL DUAL
Fatal Run	CX26162	UR	32	X	F4	X	21/	J	FATALRUN
32-in-1	CX26163 CX26164	ER	64 ??	32	banks	ОТ	2K		32IN1
Jinks	CX26164 CX26165	NR	??						
JTII/2	CX26165	INIX	??						
Street Fight	CX26167		??						
Off the Wall	CX26168	ER	16	Χ	F6	Χ		J	OFTHWALL
Shooting Arcade	CX26169	PR	16	X	F6	Χ		Ĺ	SHOOTING
Secret Quest	CX26170	R	16	X	F6	Χ		J	SECRETQ
Motorodeo	CX26171	UR	16		F6	Χ		J	MOTOR .
Xenophobe	CX26172	ER	16		F6	Χ		J	XENOPH0B
	CX26173		??						
	CX26174		??						
	CX26175	_	??					_	
Radar Lock	CX26176	R	16	Χ	F6	X		J	RADARLOK
Ikari Warriors	CX26177	R	16		F6	X		j	IKARIWAR
Save Mary!	CX26178	PR	16	Х	F6	Χ		J	SAVEMARY
	CX26179 CX26180		?? ??						
	CX26180		??						
	CX26181		??						
Sentinel	CX26183	R	16		F6	Χ		L	SENTINEL
White Water Madness	CX26184	UR	??					_	
	CX26185		??						
	CX26186		??						
	CX26187		??						
	CX26188		??						
500 A.	CX26189		??						
BMX Airmaster	CX26190	ER	??						
IZI AV	CX26191 CX26192	ED	?? 16	V	ГС	V	٧a	-	KI AVNITCO
KLAX	CX20192	ER	10	Χ	F6	Χ	X2	J	KLAXNTSC
A	cyacaaa	D D	0		F0	V			A OLIAN/ENT
Aquaventure	CX26???	PR	8		F8	X		J	AQUAVENT
Bionic Breakthrough	CX26???	PR PR	8 8		F8 F8	X X		0	MINDLINK
Bugs Bunny Coke Wins!	CX26??? CX26???	UR	o 4		го	X		J J	BUGSBUN COKEWINS
Holy Moley	CX26???	PR	8		F8	X		J	HOLEMOLE
Polo	CX26???	PR	2		10	X		J	POLO
Rodeo	CX26???	PR	??					-	
Rabbit Transit	CX26???	PR	??						
Standalone Test Tape	MA017600	DM	2			Χ			MA017600
Nightmare Manor	CX26???	PR	??						
Super Stunt Cycle		PR	2			Χ		J	STUNT-1

X2: Special Best Prototype NTSC version.

X3: Doesn't like my test cart; have to disable SC for it to start. I can then re-enable the SC and it'll work. Also, the cart itsself doesn't work on my 7800 (or my test cart for that matter).

********** Action Hi-Tech **********

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Crab Control F-18 vs. Aliens Galaxy Invader Space Grid Tank City War Zone	605077 ???? ???? ???? ???? ????	UR UR UR UR UR UR	?? ?? ?? ?? ??						

********** Activision **********

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Dragster	AG-001	U	2			Χ		J	DRAGSTER
Boxing	AG-002	U	2			Χ		J	BOXING
Checkers	AG-003	ER	2			Χ		J	CHECKERA
Fishing Derby	AG-004	U	2			Χ		J	FISHDRBY
Skiing	AG-005	U	2			Χ		J	SKIING
Bridge	AX-006	U	4			Χ		J	BRIDGE
Tennis	AG-007	C	2			Χ		J	TENNIS
Laser Blast	AG-008	C	2			Χ		J	LASRBLST
Freeway	AG-009	U	2			Χ		J	FREEWAY
Kaboom	AG-010	U	2 2			Χ		Р	KAB00M
Stampede	AG-011	U				Χ		J	STAMPEDE
Ice hockey	AX-012	U	4			Χ		J	ICEHOCKY
Barnstroming	AX-013	U	4			Χ		J	BARNSTRM
Gran Prix	AX-014	U	4			Χ		J	GRANDPRX
Chopper Command	AX-015	U	4			Χ		J	CHOPRCMD
Starmaster	AX-016	U	4			Χ		J	STARMAST
Megamania	AX-017	U	4			Χ		J	MEGAMAN
Pitfall	AX-018	C	4			Χ		J	PITFALL
Sky Jinks	AG-019	R	2			Χ		J	SKYJINKS
River Raid	AX-020	U	4			Χ		J	RIVERAID
Spider Fighter	AX-021	U	4			Χ		J	SPIDRFTR
Seaquest	AX-022	R	4			Χ		J	SEAQUEST
Oink!	AX-023	R	4			Χ		J	OINK
Dolphin	AX-024	R	4			Χ		J	DOLPHIN
Keystone Kapers	AX-025	U	4			Χ		J	KEYSTONE

AX-026	U	4		Χ		J	ENDURO A
AX-027	R	4		Χ		J	PLAQATTK
AZ-028	R	8	F8	Χ	X2	J	ROBO_FIX
AX-029	R	4		Χ		J	CRACKP0T
AZ-030	R	8	FE	Χ		J	DECATHLN
AX-031	R	4		Χ		J	FROSTBIT
AZ-032	R		F8	Χ		J	PRESSURE
AZ-033	R	8	F8	Χ		J	SPCSHUTL
AG-034-04	R		F8	Χ		J	PRIVEYE
AB-035-04	R	8	F8	Χ	X1	J	PITFALL2
AZ-036-04	R		F8	Χ		J	HER0
AZ-037-04	R		F8	Χ		J	BEAMRIDE
AG-038	R			Χ		J	CSMC0MTR
AX-039			F8	Χ		J	KUNG_FU
AK-041	N	ever	Released	by	Acti	vis	ion
AK-043	R	16	F6	Χ		J	COMMANDO
AK-046	UR	16	F6	Χ		J	FIGHTERP
AK-048-04	ER	16	F6	Χ		J	RIVRAID2
AK-049	R	16	F6	Χ		J	RAMPAGE
AK-050-04	R	16	F6	Χ		J	DBLDRAGN
AZ-108-04	R	8	F8	Χ		J	GHOSTBST
A?-???	NR	??	See Sa	lu-			
A?-???	NR	??					
A?-???	NR	??	See Ima	agi	C		
A?-???	PR	??	Proto	Exi	sts	-	
A?-???	NR	??					
	AX-027 AZ-028 AX-029 AZ-030 AX-031 AZ-032 AZ-033 AG-034-04 AB-035-04 AZ-036-04 AZ-037-04 AG-038 AX-039 AK-041 AK-043 AK-046 AK-048-04 AK-049 AK-050-04 AZ-108-04 AZ-??? AZ-??? AZ-???	AX-027 R AZ-028 R AX-029 R AZ-030 R AX-031 R AZ-032 R AZ-033 R AG-034-04 R AB-035-04 R AZ-036-04 R AZ-037-04 R AG-038 R AX-039 R AX-039 R AK-041N AK-043 R AK-046 UR AK-048-04 ER AK-049 R AK-049 R AX-050-04 R AZ-108-04 R AZ-108-04 R AZ-??? NR A?-??? NR A?-??? NR	AX-027 R 4 AZ-028 R 8 AX-029 R 4 AZ-030 R 8 AX-031 R 4 AZ-032 R 8 AZ-033 R 8 AG-034-04 R 8 AZ-036-04 R 8 AZ-037-04 R 8 AZ-037-04 R 8 AX-039 R 8 AX-039 R 8 AX-041Never AK-043 R 16 AK-046 UR 16 AK-048-04 ER 16 AK-049 R 16 AK-049 R 16 AK-049 R 16 AK-049 R 16 AX-039 R 8 AX-039 R 8 AX-031 R 16 AX-041 R 16 AX-048 R 16 AX-048 R 16 AX-049 R 16 AX-049 R 16 AX-049 R 16 AX-050-04 R 16 AX-07?? NR ?? A?-??? NR ?? A?-??? NR ??	AX-027 R 4 AZ-028 R 8 F8 AX-029 R 4 AZ-030 R 8 FE AX-031 R 4 AZ-032 R 8 F8 AZ-033 R 8 F8 AG-034-04 R 8 F8 AB-035-04 R 8 F8 AZ-036-04 R 8 F8 AZ-037-04 R 8 F8 AZ-037-04 R 8 F8 AX-039 R 8 F8 AX-039 R 8 F8 AX-041Never Released AK-043 R 16 F6 AK-044 UR 16 F6 AK-046 UR 16 F6 AK-049 R 16 F6 AK-049 R 16 F6 AK-049 R 16 F6 AK-049 R 16 F6 AX-049 R 16 F6 AX-07?? NR ??See Sa' A?-??? NR ??See Images.	AX-027 R 4 X AZ-028 R 8 F8 X AX-029 R 4 X AZ-030 R 8 FE X AX-031 R 4 X AZ-032 R 8 F8 X AZ-033 R 8 F8 X AZ-033 R 8 F8 X AZ-033 R 8 F8 X AZ-036-04 R 8 F8 X AZ-036-04 R 8 F8 X AZ-037-04 R 8 F8 X AZ-037-04 R 8 F8 X AZ-037-04 R 8 F8 X AX-039 R 8 F8 X AX-039 R 8 F8 X AX-040 R 8 F8 X AX-040 R 8 F8 X AX-041 R 8 F8 X AX-049 R 16 F6 X AK-040 UR 16 F6 X AK-040 UR 16 F6 X AK-040 UR 16 F6 X AK-040 R 16 F6 X AK-049 R 16 F6 X AX-049 R 16 F6 X AX-050-04 R 16 F6 X AX-07?? NR ??See Salu-A?-??? NR ??See Imagin A?-??? NR ??	AX-027 R 4 X AZ-028 R 8 F8 X X2 AX-029 R 4 X AZ-030 R 8 FE X AX-031 R 4 X AZ-032 R 8 F8 X AZ-033 R 8 F8 X AZ-033 R 8 F8 X AZ-034-04 R 8 F8 X AB-035-04 R 8 F8 X AZ-036-04 R 8 F8 X AZ-037-04 R 8 F8 X AZ-037-04 R 8 F8 X AX-039 R 8 F8 X AX-039 R 8 F8 X AX-041Never Released by Acti AK-043 R 16 F6 X AK-046 UR 16 F6 X AK-046 UR 16 F6 X AK-049 R 16 F6 X AK-049 R 16 F6 X AK-049 R 16 F6 X AX-039 R 16 F6 X AX-049 R 16 F6 X AX-07?? NR ??See Salu A?-??? NR ??See Imagic A?-??? NR ??See Imagic A?-??? NR ??See Imagic A?-??? NR ??See Imagic A?-??? NR ??	AX-027 R 4 X J AZ-028 R 8 F8 X X2 J AX-029 R 4 X J AZ-030 R 8 FE X J AX-031 R 4 X J AZ-032 R 8 F8 X J AZ-033 R 8 F8 X J AZ-033 R 8 F8 X J AG-034-04 R 8 F8 X J AZ-036-04 R 8 F8 X J AZ-037-04 R 8 F8 X J AZ-037-04 R 8 F8 X J AX-039 R 8 F8 X J AX-039 R 8 F8 X J AX-040 R 8 F8 X J AX-040 R 8 F8 X J AX-040 R 8 F8 X J AX-041Never Released by Activis AK-043 R 16 F6 X J AK-044 R 16 F6 X J AK-046 UR 16 F6 X J AK-049 R 16 F6 X J AX-049 R 16 F6 X J AX-07?? NR ??See Salu A?-??? NR ??See Imagic A?-??? NR ??

X1: Uses Activision's version of the 'Super Chip' No extra RAM this time, however it does have extra ROM! Does three-channel sound, and even includes several random # generators.

X2: This used to be an FE cart, but has been fixed to run as an F8.

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Title Match Pro Wresting	AG-041	R	8		F8	Χ		J	PROWREST
Skateboardin'	AG-042	R	8		F8	Χ		J	SKATEBRD
Pete Rose Baseball	AK-045	R	16		F6	Χ		J	PETER0SE
Tomcat F-14 Simulator	AK-046	ER	16		F6	Χ	X1	J	FIGHTERP
My Golf	A?-???	ER	8		F8	Χ		J	MYG0LF

Tax Avoiders	????	R	8		F8	Χ		J	TAXAVOID
********	*****								
* Amiga	*								
**********	*******								
	5		67		D .C		6.0	6 T	e
Name	Part #		SZ 	SC		IM 	SP	CT	Filename
Mogul Maniac	3120	ER	4			Х		J	MOGULMAN
Surf's Up	3125	PR	8		F8	X		j	SURF FIX
Off your Rocker	3130	PR	4			Χ		J	0FFR0CKR
**************************************	******								
* Answer Software ************************************									
Name	Part #	RΔ	S 7	sc	RS	IM	SP	СТ	Filename
Malagai	ASC1001	UR	4			Χ		J	MALAGAI
Gauntlet	ASC1002	UR	4			X		Ĵ	GAUNTLET
Confrontation	ASC2001	UR	??						
Personal Game Programmer	PGP-1	UR	XX			Hard	ware		

* Artic ************************************	******								
Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
· · · · · · · · · · · · · · · · · · ·									
Space Robot	SM8001	UR	4			Χ		J	SPCR0B0T
Astrowar		UR	4			Χ		Ĵ	ASTROWAR

* Apollo **********************************									
	. 4. 4. 4. 4. 4. 4. 4. 4. 4. 4.								
Name	Part #	RΔ	57	sc	RS	ТМ	SP	СТ	Filename
Name									
Skeet Shoot	AP 1001	R	2			Х			SKEETSHT
Spacechase	AP 2001	Ü	4			X			SPACHASE
Space Cavern	AP 2002	Ü	4			X			SPACECAV
Racquetball	AP 2003	U	4			Χ			RACQUETB
Lost Luggage	AP 2004	U	4			X			LOSTLUGG
Lochjaw	AP 2005	ER	4			Χ		J	LOCHJAW

Shark Attack Infiltrate Kyphus Guardian Final Approach Wabbit Pompeii Squoosh	AP 2005 AP 2006 AP 2007 AP 2008 AP 2009 AP 2010 AP 2011 AP 2012	U R R R R R PR	4 4 ?? 4 4 4 ??			X X X X		J J J	SHARKATK INFILTRT GUARDIAN FINLAPCH WABBIT
**************************************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Death Trap London Blitz Wall Ball Shuttle Orbiter Out of Control	50010 50020 50030 50040 50050	UR ER ER UR UR	4 4 4 4 ??			X X X X Ne	ed!	J J J	DETHTRAP LONDBLTZ WALLBALL SHTLORBT
**************************************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Sea Monster Space Tunnel Phantom Tank Open Sesame Dancing Plate Bobby is Going Home Mission 3000 AD Snail Against Squirrel Mr. Postman Superman (CCE)	PG201 PG202 PG203 PG204 PG205 PG206 PG207 PG208 PG209 ????	R R R R R R R R R ??	4 4 4 4 4 4 4 4			X X X X X X X X		J	SEAMNSTR SPACT_TW PHANTOMT OPENSESM DANCPLAT BOBBY MISN3000 SNALSQRL MRPOSTMN SUPERCCE
**************************************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Okie Dokie (Lights Out)	????		2			Х		J	OKIEDOKE

Name	Part #	RA 	SZ	SC	BS	IM 	SP 	CT 	Filename
Assault Great Escape Z-Tack Wall Defender	CA281 CA282 CA283 CA285	ER ER ER ER	4 4 4 4			X X X		J J J	ASSAULT GRESCAPE Z_TACK WALLDFND
******************* * CBS Electronics ***********************************	*								
Name	Part #	RA	SZ	SC	BS	IM 	SP	CT	Filename
Wizard of Wor Gorf Blueprint	M8774 M8793 4L-2486	R U U	4 4 8		F8	X X X		J J	WIZRDWOR GORF BLUEPRNT

4L-2487

4L-2520

4L-2737

4L-2738

????

U 8

R 12

U 12

R 12

NR ??

Χ

Χ

Χ

Χ

J SOLARFOX

J TUNLRUNR

B OMEGARAC

J MTNKING

F8

FA

FΑ

FΑ

??

'SC' in this case refers to RAM+

Solar Fox

Omega Race

Wings

Tunnel Runner

Mountain King

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
								_	
Donkey Kong	2451	C	4			Χ		J	DK
Zaxxon	2454	U	8		F8	Χ		J	ZAXXON
Venture	2457	C	4			Χ		J	VENTURE
Mouse Trap	2459	U	4			Χ		J	MOUSETRP
Lady Bug	2463	UR	??						
Cosmic Avenger	2464	UR	??						
Smurf: RIGC	2465	U	8		F8	Χ		J	SMURFRES
Carnival	2468	U	4			Χ		J	CARNIVAL
Smurfs Save the Day	2511	UR	8		F8	Χ		J	SMRFSAVE
Donkey Kong Jr.	2653	R	8		F8	Χ		J	DKJR
Mr. Do!	2656	R	8		F8	Χ		J	MRD0
Berinstein Bears	2658	UR	??						
Time Pilot	2663	R	8		F8	Χ		J	TIMEPLT
Front Line	2665	R	8		F8	Χ		J	FRNTLINE
Roc 'N Rope	2667	R	8		F8	Χ		J	ROCNROPE

^{*}addendum*

Got Mr. Do! to read out, and Time Pilot seems to have read out correctly,

yet it doesn't play on the emu. I'm going to pull the EPROM off the board and read it directly! *end*

addendum2

Pulled the EPROM and copied it. Just as I suspected, it did indeed read out correctly. Guess the emu isn't as good as the Real Thing. :-) I'll try it out on the real hardware RSN.
end

addendum3

The saga continues. I tried the ROM image of Time Pilot out on the Real Thing, and it behaved the exact same way that it did on the emu. It appears that the RC delay in the cart is required so it doesn't switch banks immediately. I hope I can fix it so it can work as a normal F8 cart. *end*

addendum4

Yes! I got Time Pilot to work! This is intresting. The bank is *only* flipped in two parts of the cart- once at the beginning of bank0 and once at the beginning of bank1. The tip-off was bank #0 had a BIT \$1FF8 instruction and bank #1 had a BIT \$1FF9 instruction! This of course will *not* flip banks!!! I changed the 4K blocks around, ran it on the emu, and it worked perfectly!
end

addendum5

Finally figured out what was wrong with Smurfs Save the Day. The places in the code that switch banks was right on top of each other. (the STA \$1FFx instructions were at the same addresses in diffrent banks) As a result, there were only STA \$1FF8 instructions rather than both STA \$1FF8 and STA \$1FF9 instructions. Fixing these resulted in a working ROM image!!!!! Now all I need is Berinstein Bears to round out the Coleco Collection.

end

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
MagiCard	CM-001	UR	??				Hard	ware	
Video Life	CM-002	UR	??						
Cosmic Swarm	CM-003	R	2			Χ		J	COSMSWRM
Room of Doom	CM-004	ER	4			Χ		J	R00MD00M
Mines of Minos	CM-005	ER	4			Χ			MINEMNOS
Cakewalk	CM-008	ER	4			Χ		J	CAKEWALK
Stronghold	CM-009	ER	4			Χ			STRNGHLD

*******	********	******
*	Data Age	*
*******	·**********	******

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Encounter at L-5	DA 1001	U	4			X			ENCONTL5
Warplock SSSnake Airlock	DA 1002 DA 1003 DA 1004	C	4 4 4			X X X			WARPLOCK SSSNAKE AIRLOCK
Bugs Journey Escape	DA 1005 112-006	Ü	4			X X		P 1	BUGS JRNYESCP
Rock 'n Roll Escape Bermuda Triangle	112-006 112-007	R R	4 4			X X	X1	J J	JRNYESCP BERMDTRI
Frankenstein's Monster Secret Agent	112-008 ????	R UR	4 ??			Χ		J	FRANKMON

X1: This is the same as Journey Escape.

****	*********	*****
*	DSD/Camelot	*
****	********	*****

Tooth Protectors ???? UR 8 E0 X X1	√1 1	TOOTUDDO

X1: Intresting!!! This cart uses the Parker Bros. 8K bankswitch!!! It's the only non-PB cart to use this format.

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Mega Boy	????	??	64		F0	Х		J	MEGABOY

This is a very intresting cart. It's designed as an educational product! It was only test-marketed in Brazil, and most of it is in Portugese. It contains several different learning tools- Math, English, Games, and Music! This cart goes with a hand-held 2600 called the 'Mega Boy'... it's similar to a TV Boy except it can accept regular 2600 carts! It runs on batteries and transmits through the air to a TV in a similar fashion to a TV Boy. All in all a very cool device.

*****	****	*******	******
*	Ed	Fendermyer	*
******	****	*******	******

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
SoundX EdTris	???? ????	ER ER	4			X		J	SOUNDX
*********	*****								
* Emag **********	******								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
I Want My Mommy Dishaster Tanks But No Tanks Cosmic Corridor Pizza Chef Immies & Aggies A Mysterious Thief	GN-010 GN-020 GN-030 GN-040 GN-050 GN-060 GN-070	ER ER ER ER ER ER	4 4 4 4 4 4 7?			X X X X X		J	IWANTMOM DISHASTR TANKSBUT COSMCORR PIZZA IMMIES
Fire Spinner	GN-080	ER	4			Х			FIRESPIN
********** * Epyx ***********************************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Summer Games Winter Games California Games Super Cycle	8056100250 8056100251 8056100286 ????		16 16 16 ??		F6 F6 F6	X X X		J J	SUMMERGA WINTERGA CALIFGMS
********	****								
* Exus ************************************	******								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Video Jogger Video Reflex	???? ????	?? ??	4			X X		0	VIDJOGGR VIDREFLX
**************************************	re *								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename

Boing!	????	ER	4			Х		J	BOING
********** * Froggo *********************************	*								
Name	Part #	RA	SZ	SC	BS 	IM	SP	CT	Filename
Karate Spiderdroid Task Force Cruise Missile Sea Hawk Sea Hunt	FG 1001 FG 1002 FG 1003 FG 1007 FG 1008 FG 1009	R R R R R	4			X X X X X		J J J J	KARATE SPIDROID TASKFORC CRUSMISL SEAHWK_F SEA_HUNT
********************* * Funvision ***********************************	*								
Name	Part #	RA	SZ 	SC	BS 	IM	SP	CT	Filename
Ocean City Defender Spider Maze	???? ????	?? ??	4 4			X X		J J	OCEANCTY SPDRMAZE

* HES *************	*								
IILJ	*	RA	SZ	SC	BS	IM 	SP	СТ	Filename
**************	* ******	RA ?? ?? ??	SZ 8 8 ?? ??	SC 	BS F8 F8	IM X X	SP 	CT J J	Filename CHALLANG MYGOLF
Name Challenge My Golf Pigs 'n Wolf	* ***** Part # ???? 535 ???? ????	?? ?? ?? ??	8 8 8 ??	SC 	 F8		SP 	 J	CHALLANG
Name Challenge My Golf Pigs 'n Wolf Star Warrior Go for the Gold Pak (reall -Winter Games	* ****** Part # ???? 535 ???? ???? y two carts)	?? ?? ?? ??	8 8 ?? ??	SC 	F8 F8 F6	х х х	SP 	 J J	CHALLANG MYGOLF WINTERG2
Name Challenge My Golf Pigs 'n Wolf Star Warrior Go for the Gold Pak (reall -Winter Games -Summer Games **** Special menued multicarts:	* ****** Part # ???? 535 ???? ???? y two carts)	?? ?? ?? ??	8 8 ?? ??	SC 	F8 F8 F6	х х х	SP 	 J J	CHALLANG MYGOLF WINTERG2

-Frogger -Stampede -Seaquest -Boxing										
-Skiing Hot Action Pak -Ghostbusters -Plaque Attack			542	?1	' 16	1	F6	Х	J	НОТРАК
-Tennis Rad Action Pak -Kung-Fu Master -Frostbite			559	?1	' 16		F6	Х	J	RADACT
-Freeway Mega Fun Pak -Gorf -Planet Patrol -Pac-Man			????	?1	' ??		F6	Х	J	MEGAPAK
-Skeet Shoot Sports Action Pak -Enduro -Ice hockey			????	?1	' 16		F6	Х	J	SPORTACT
-Fishing Derby -Dragster Super Hit Pak -River Raid -Grand Prix -Fishing Derby			????	? 1	' 16		F6	X	J	SUPERHIT
-Creature Strike 2 Pak Special #2	-	Demon	Attack ????	?1	' 16	ı	F6	X X	J	P0 P1
-Star Warrior	-	Starwa	ars: Empi	re Sti	ikes	Back	•			
-Frogger 2 Pak Special #3 -Wall Defender -Planet Patrol			????	?1	' 16		F6	Х	J	P2
2 Pak Special #4 -Space Voyage -Fire Alert	-	O - O	???? aster ighter	?1	' 16		F6	Χ	J	P3
2 Pak Special #5 -Alien Force -Hoppy			????	?1	? ??					
2 Pak Special #6 -Cavern Blaster -City War			????	?1	? ??					
2 Pak Special #7 -Challenge -Surfing			????	?1	? ??					
2 Pak Special #8 -Dolphin -Pigs 'n Wolf			????	?1	? ??					
2 Pak Special #9 -Motocross -Boom Bang			????	?1	? ??					

Notes about menued carts: These are very intresting! They consist of several games in seperate banks of a 16K F6 bankswitched ROM. There's a very slick looking menu that comes up displaying the co's logo (HES), and to press the fire button. After doing so, the user is given a choice of what game to play. The choices are actually written out onto the screen in hi-res text! You highlight the desired game and hit the button. The tech behind it is pretty simple, yet clever. On startup, the bank is pointed to the menu system's bank, and then is run just like any other F6 cart. The games are stored in seperate banks, or the upper 2K of a 4K block with the lower 2K being the menuing program. When the user selects a game, a small 'stub' of code is written to RAM then executed; this stub is usually something like this:

0080: LDA \$1FF8 ; change banks 0083: JMP \$1000 ; run game

So that when 0080 is called, the cart is switched to bank #2, and then the game in said bank will be run. Pretty nifty! Note that since this is already a bankswitched game, 8K bankswitched games can be run in it, as well as non-bankswitched games. Check out the game linup on the 'Hot Action Pak'. It is:

Ghost Busters 8K Plaque Attack 4K Tennis 2K

Total: 14K

That gives us the extra 2K for the menuing system.

On those '2 Pak Special' carts, they are still 16K, but almost half of this goes to waste; they could've made '3 Pak Specials' to use up most of the space no problem. I still don't know why they didn't do this. Examining the ROM shows almost half of it is 'FF'. What a waste! :-)

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Robot Fight	1	ER	4			Χ		J	R0B0FGHT
War 2000	2		??						
Gogo? Home Monster	3		??						
World? Trap?	9		??						
Asteroid Fire	11		??						
Sky Alien	12		??						
Base Attack	13		4			Χ			BASEATTK
Wall Break	14		??						
Lilly Adventure	17		4			Χ		J	LILLY
Col 'N'	????		4			Χ		J	COLN
Cosmic War	????		??						
Frisco	????		??						

IQ 180	????	4	Χ	J	IQ180
Magic Carpet	????	??			
Panda Chase	????	4	Χ	J	PANDCHSE
Parachute	????	4	Χ		PARCHUTE
Plate Mania	????	??			
Racing Car	????	??			
Repro Cart	83014	??			
Tanks War	????	??			
Teddy Apple	????	??			
Tennis Topsy	????	??			
Zoo Fun	????	4	Χ	J	Z00FUN

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Trick Shot	IA3000	R	4			Χ		J	TRICKSHT
Demon Attack	IA3200	C	4			Χ		J	DEMONATK
Star Voyager	IA3201	C	4			Χ			STARVYGR
Atlantis	IA3203	U	4			Χ		J	ATLANTIS
Cosmic Ark	IA3204	U	4			Χ			COSMCARK
No Escape!	IA3312	R	4			Χ			N0ESCAPE
Fire Fighter	IA3400	R	4			Χ		J	FIREFITE
Aerial Ace	IA3409	ER	??						
Shootin' Gallery	IA3410	ER	4			Χ		J	SH00TIN
Riddle of the Sphinx	IA3600	U	4			Χ		J	RIDDLE
Dragon Fire	IA3611	C	4			Χ		J	DRGNFIRE
Fathom	03205	R	8		F8	Χ		J	FATHOM
Solar Storm	03206	R	4			Χ			S0LRSTRM
Moonsweeper	03207	ER	8		F8	Χ		J	M00NSWEP
Laser Gates	03208	U	4			Χ		J	LASRGATE
Quick Step	03211	R	4			Χ		J	QUICKSTP
Subterra	03213	R	8		F8	Χ		J	SUBTERRA
Wing War	EIZ-002-04	ER	8		F8	Χ		J	WINGWAR
Cubicolour	????	UR	4			Χ		J	CUBICOL
Imagic Selector	????	DM	4			Χ			IMAGSLCT

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Aliens Return Fire Birds Meteor Defence	???? ???? ????	?? ?? ??	4 4 4			X X X		J J J	ALIENRET FIREBIRD METDEF

* Konami * * **********************

N	ame	Part #	RA :	SZ	SC	BS	IM	SP	СТ	Filename
Dogwan	0	01	ER	4			· · ·			POOYAN
Pooyan				•			X			
Strategy X		10	ER	4			Χ			STRATGYX
Marine War	s 0	11	ER	4			Χ			MARINWAR

Note: The part numbers are labelled in binary notation. :-)

[If SC is marked, chip uses an extra RAM, #TMM2009P-25. It's really a 6116 in disguise]

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Star Strike	MT4313	R	4			Χ		J	STARSTRK
Adventures of TRON	MT4317	U	4			Χ		J	ADVNTRON
MOTU: Power of He-Man	MT4319	R	16		E7	Χ		J	HE_MAN
Burgertime	MT4518	R	12	Χ	E7	Χ		J	BURGTIME
Kool-Aid man	MT4648	U	4			Χ		J	K00LAIDE
SC Football	MT5658	C	4			Χ		J	SUPRF00T
Space Attack	MT5659	C	4			Χ		J	SPACATTK
Armour Ambush	MT5661	C	4			Χ		J	ARMAMBSH
TRON Deadly Discs	MT5662	U	4			Χ		J	TRONDEAD
Lock 'n Chase	MT5663	C	4			Χ		J	L0CKCHSE
Frogs and Flies	MT5664	U	4			Χ		J	FR0GFLYS
SC Baseball	MT5665	C	4			Χ		J	SUPRBASE
Astroblast	MT5666	U	4			Χ		J	ASTRBLST
Dark Cavern	MT5667	U	4			Χ		J	DARKCVRN
International Soccer	MT5687	U	4			Χ		J	INTRSCCR
Air Raiders	MT5861	R	4			Χ		J	AIRAIDRS
Bump 'n Jump	MT7045	R	8		E7	Χ		J	BNJ

^{&#}x27;SC' in this case refers to extra RAM in the cart.

Notes:

All three E7 carts have been read in as 16K. This makes it much easier to write emulators and build hardware, as there's just one standard size. The RAM can still be included in any cart; however it has no effect in Bump 'n Jump or He-Man. Fortunately, it doesn't hinder operation either, so I chose to just include the extra RAM under the E7 label.

Survival Run Spitfire Attack	4362 4363	R U	4 4			X X		J J	SURVLRUN SPITFIRE
*********	******								
* Mystique (hehe!) ***********									
Name	Part #	RA	SZ	SC	BS	IM 	SP	CT	Filename
Custer's Revenge Bachelor Party Beat 'em and Eat 'em Bachelorette Party Gigolo Jungle Fever Burning Desire Cathouse Blues Knight on the Town Lady in Wading Philly Flasher	1001 1002 1003 1004 1009 1011 ???? ???? ????	ER ER ER ER ER ER ER ER ER	4 4 4 4 4 4 4 4 7?			X X X X X X X X X		J P P J J J J	CUSTEREV BACHELOR BEATEM BACHLRTT GIGOLO JNGLFEVR BURNDESR CATHOUSE KNIGHTWN
**************************************	* ******	D.A.	67	6.6	D.C.	T.M.	6.0	C.T.	E-1
Name	Part #	RA	SZ 	SC	BS 		SP	CT	Filename
Sourcerer Fire Fly Star Fox ******************************** Panda Inc.		U U U	4 4 4			X X X		J J	SORCERER FIREFLY STARFOX

Name	Part #	RA	SZ	SC	BS	IM 	SP	CT	Filename
Space Canyon Tank Brigade Scuba Diver Stuntman Dice Puzzle Sea Hawk Exocet	100 101 104 105 106 108	R R R R R	4 4 4 4 4			X X X X X		J J J	$STNTMAar{N}$

Name	Part #	RA	SZ	SC BS	5 IM	SP	CT	Filename
SW: Jedi Arena SW: Empire Strikes Back SW: Death Star Battle	PB5000 PB5050 PB5060	R C R	4 4 8	E(X X O X		P J J	JEDIAREN STAREMPR DETHSTAR
SW: Ewok Adventure Gyruss James Bond 007 Frogger Amidar	PB5065 PB5080 PB5110 PB5300 PB5310	PR R R C	?? 8 8 4 4	E(9 X X X	ists	J J J	GYRUSS JAMEBOND FROGGER AMIDAR
Super Cobra Reactor Tutankham Sky Skipper Q*Bert	PB5320 PB5330 PB5340 PB5350 PB5360	U U R C	8 4 8 4 4	E(X X X X		J J J	SPRCOBRA REACTOR TUTANK SKYSKIPR QBERT_PB
Popeye SW: Arcade Game Q*Bert's Qubes Frogger][: Threeedeep Circus Charlie	PB5370 PB5540 PB5550 PB5590 PB5750	C ER ER ER	8 8 8 8 ??	E(E(E(No	9 X 9 X	Cop	J J J	POPEYE SWARCADE QBRTQUBE FROGGER2 Exist
Montezuma's Revenge Mr. Do's Castle Spider-Man Strawberry Shortcake GI Joe: Cobra Strike	PB5760 PB5820 PB5900 PB5910 PB5920	ER ER R U	8 8 4 4 4	E(9 X		J J J J	MONTZREV DOCASTLE SPIDRMAN STRWBERY GIJOE
Action Force Lord of the Rings McDonald's	PB5920 PB???? PB????	ER UR UR	4 ?? ??		X Known		j	ACTIONMN Exist Exist
**************************************	*							
Name	Part #	RA	SZ	SC BS	5 IM	SP	CT	Filename
See Mystique for #201-205								
/General retreat \Westward Ho	206 206		?? ??					
**************************************	*							
Name	Part #	RA	SZ	SC BS	5 IM	SP	CT	Filename
Seesaw	????	ER	4		Χ		J	SEESW_TW

Football	????	ER	4	Χ		FB PIR8
Earth Attack	????	ER	??			_
Puzzled World	????	ER	4	X		PUZZL_TW
Chess	????	ER	??			_
Boom Bang	????	ER	4	Χ	J	BOOMBANG
Pitfall	????	ER	??			
Spider	????	ER	??			
Tennis	????	ER	??			
Pyramid War	????	ER	4	Χ		PYRMDWAR
Bobby is Going Home	????	ER	4	Χ	J	B0BBY
Mr. Postman	????	ER	4	Χ		MRP0STMN
Space Tunnel	????	ER	4	X		SPACTUNL
Fancy Car	????	ER	??			
My Way	????	ER	??			
S.O.S.	????	ER	??			
Frogger	????	ER	??			
Fishing	????	ER	??			
Cross Force	????	ER	4	X		CR0SFRCE
Farmer Dan	????	ER	??			
Dancing Plate	????	ER	4	X		DANCPLAT
Volley Ball	????	ER	??			
Little Bear	????	ER	??			

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Pac-Kong	55-003	R	4			Χ			PACKONG
Netmaker	55-006	R	??						
Mafia	55-010	R	??						
Hey! Stop!	55-012	R	4			Χ		J	HEY STOP
Bi! Bi!	55-013	R	4			Χ			$BIB\overline{I}$
Catch Time	55-015	R	??						
Boom Bang	55-016	R	4			Χ			BOOMBANG
Mariana	55-017	R	??						
Curtiss	55-019	R	??						
Tuby Bird	55-020	R	4			Χ			TUBYBIRD
Tomboy	55-???	R	4			Χ		J	TOMBOY

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Acid Drop	????	ER	16		F6	Χ		J	ACIDDR0P
Ghostbusters][????	ER	16		F6	Χ		J	GH0STBS2
Pick 'N' Pile	????	ER	16		F6	Χ		J	PICKPILE

****	<*****************	****
	Sancho	*
*****	<*************************************	******

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Exocet Sea Hawk Skin Diver Nightmare Dice Puzzle Forest	TEC001 TEC002 TEC003 TEC004 TEC005 TEC006	ER ER ER ER ER	?? ?? 4 4 4			X X X X			SKINDIVR NGHTMARE DICEPUZL FOREST
********	*****								
* Sega **********	******								
******	****								
Name	Part #	RA	SZ	SC	BS	IM 	SP	CT	Filename
Tac-Scan Sub Scan Thunderground Star Trek: SOS Buck Rodgers Congo Bongo Up 'n Down Tapper Spy Hunter ***********************************	*	U U R R U R ER ER	4 4 8 8 8 8 8 8		F8 F8 F8 F8 F8	X X X X X X X		J J J J	TACSCAN SUBSCAN THUNDGRD STARTREK BUCKROG CONGBONG UPNDOWN TAPPER SPYHUNTR
Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Glib	????	UR	4			Χ			GLIB
**************************************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Eli's Ladder	????	UR	4			Χ			ELILADDR

*	Sparrow	*
******	***********	k*****

Name										
**************************************	Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
**************************************	Music Machine	GCG 1001T	UR	4			Χ			MUSCMACH
Name		******* *								
Gangster Alley SA-201 R 4 X J GANGALLY Planet Patrol SA-202 R 4 X J PLANTPAT CROSS Force SA-203 R 4 X J PLANTPAT CROSS Force SA-203 R 4 X GROSFRCE Tape Worm SA-204 R 4 X J TAPEWORM China Syndrome SA-205 R 4 X CHINASYN The Challange of Nexar SA-206 R 4 X NEXAR Master Builder SA-210 R 4 X NEXAR Master Builder SA-211 R ?? Mangia SA-211 R ?? Mangia SA-212 R 4 X J MANGIA Gas Hog SA-217 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************		*****								
Planet Patrol	Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Cross Force SA-203 R 4 X CROSFRCE Tape Worm SA-204 R 4 X J TAPEWORM China Syndrome SA-205 R 4 X CHINASYN The Challange of Nexar SA-206 R 4 X NEXAR Master Builder SA-210 R 4 X J MASTBULD Galactic Tactic SA-211 R 7? Y Mangia SA-212 R 4 X J MANGIA Gas Hog SA-218 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? Cave-In SA-??? UR ?? Cave-In SA-??? UR 4 X J CHUCKWGN ***********************************				4					_	-
Tape Worm									J	
China Syndrome SA-205 R 4 X CHINASYN The Challange of Nexar SA-206 R 4 X NEXAR Master Builder SA-210 R 4 X J MASTBULD Galactic Tactic SA-211 R ?? WASTBULD Mangia SA-212 R 4 X J MANGIA Gas Hog SA-217 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************									,	
The Challange of Nexar SA-206 R 4 X MEXAR Master Builder SA-210 R 4 X J MASTBULD Galactic Tactic SA-211 R ?? Mangia SA-212 R 4 X J MANGIA Gas Hog SA-217 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-?? UR ?? Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************									J	
Master Builder SA-210 R 4 X J MASTBULD Galactic Tactic SA-211 R 7? WANGIA Mangia SA-212 R 4 X J GASHOG Bumper Bash SA-218 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? Crear Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************										
Mangia SA-212 R 4 X J GASHOG Gas Hog SA-217 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************									J	
Gas Hog SA-217 ER 4 X J GASHOG Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************										
Bumper Bash SA-218 ER 4 X J BUMPER Save the Whales SA-??? UR ?? UR ?? Cave-In SA-??? UR ?? Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************		_							_	
Save the Whales SA-??? UR ?? Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************				_						
Cave-In SA-??? UR ?? Chase the Chuckwagon SA-??? UR 4 X J CHUCKWGN ***********************************				-			^		J	DOM LIX

* StarPath * * ********************************	Chase the Chuckwagon	SA-???	UR	4			Χ		J	CHUCKWGN
* StarPath * * ********************************	****	**								
Name Part # RA SZ SC BS IM SP CT Filename Supercharger BIOS ROM 330030 2 X STARPATH Phasor Patrol RA-4000 R 6 AR X J PHASOR Communist Mutants RA-4001 R 6 AR X COMMIE Suicide Mission RA-4002 R 6 AR X J SUICIDE Killer Satellites RA-4103 R 6 AR X J SUICIDE Killer Satellites RA-4104 ER 6 AR X J KILLRSAT RABbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4300 R 6 AR X SWOSAROS Excalibur RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX SURVIVAL1-3 Survival Island RA-4401 ER 6*3 AR XXX SWEAT1,2										
Supercharger BIOS ROM 330030 2 X STARPATH Phasor Patrol RA-4000 R 6 AR X J PHASOR Communist Mutants RA-4001 R 6 AR X COMMIE Suicide Mission RA-4002 R 6 AR X J SUICIDE Killer Satellites RA-4103 R 6 AR X J KILLRSAT Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? FIREBALL Party Mix RA-4300 R 6 AR XX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3		*****								
Supercharger BIOS ROM 330030 2 X STARPATH Phasor Patrol RA-4000 R 6 AR X J PHASOR Communist Mutants RA-4001 R 6 AR X COMMIE Suicide Mission RA-4002 R 6 AR X J SUICIDE Killer Satellites RA-4103 R 6 AR X J KILLRSAT Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? FIREBALL Party Mix RA-4300 R 6 AR XX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3	Nama	Part #	RΛ	S 7	SC	RS	ТМ	SD	СТ	Filename
Phasor Patrol RA-4000 R 6 AR X J PHASOR Communist Mutants RA-4001 R 6 AR X COMMIE Suicide Mission RA-4002 R 6 AR X J SUICIDE Killer Satellites RA-4103 R 6 AR X J KILLRSAT Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SWEAT1,2	Name									
Communist Mutants RA-4001 R 6 AR X COMMIE Suicide Mission RA-4002 R 6 AR X J SUICIDE Killer Satellites RA-4103 R 6 AR X J KILLRSAT Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SWEAT1,2		330030								
Suicide Mission RA-4002 R 6 AR X J SUICIDE Killer Satellites RA-4103 R 6 AR X J KILLRSAT Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SWEAT1,2									J	
Killer Satellites RA-4103 R 6 AR X J KILLRSAT Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SWEAT1,2									,	
Rabbit Transit RA-4104 ER 6 AR X J RABBIT Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SWEAT1,2										
Frogger RA-4105 ER 6 AR X J FROGGER Escape from the Mindmaster RA-4200 ER 6*4 AR XXXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? FIREBALL Fireball RA-4300 R 6 AR XX FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-44??? PR 6*2 AR XX SWEAT1,2										
Escape from the Mindmaster RA-4200 ER 6*4 AR XXXX J MINDMAS1-4 Sword of Saros RA-4201 ER 6 AR X SWOSAROS Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2										
Excalibur RA-4201 PR ?? Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2		RA-4200	ER	6*	4	AR	XX	XX	J	MINDMAS1-4
Fireball RA-4300 R 6 AR X FIREBALL Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2						AR	Χ			SW0SAR0S
Party Mix RA-4302 ER 6*3 AR XXX PRTYMIX1-3 Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2		-				4.5	v			ETDEDA!!
Dragonstomper RA-4400 ER 6*3 AR XXX J DRAGON1-3 Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2					: >			V		
Survival Island RA-4401 ER 6*3 AR XXX SURVIVAL1-3 Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2	•								1	
Sweat! RA-4??? PR 6*2 AR XX SWEAT1,2									J	
Comm. Mutants Demo ????? DM 6 AR X COMMDEMO	Comm. Mutants Demo	????	DM	6		AR	Χ			COMMDEMO

Dragonstomper Demo	????	DM	6	AR	Χ	DRAGDEM0
Fireball Demo	????	DM	6	AR	Χ	FIREDEMO
Frogger Demo	????	DM	6	AR	Χ	FR0GDEM0
Killer Satellites Demo	????	DM	6	AR	Χ	KILLDEMO
Esc. from Mindmaster Demo	????	DM	6	AR	Χ	MINDDEMO
Party Mix Demo	????	DM	6	AR	Χ	PRTYDEMO
Rabbit Transit Demo	????	DM	6	AR	Χ	RABTDEMO
Suicide Mission Demo	????	DM	6	AR	Χ	SUICDEMO
*********	*****	*				
		.1.				

Sunrise

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Quest for Quinta Roo Snowplow Glacier Patrol Noah and the Ark	1603 ???? ???? ????	ER ER ER	8 ?? 4 ??		F8	X X			QUINTROO GLACIER

********** Suntek

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Time Race Galactic	1 2	ER ER	?? ?? ??						
Pac-Kong Pyramid War Netmaker	3 4 6	ER ER ER	4 4 ??			X X			PACKONG PYRMDWAR
Bermuda	9	ER	4			Χ			BERMUDA

*********** Technovision

Name	Part #	RA SZ	SC	BS	IM	SP	CT	Filename
Adventures of GX-12 Flipper Formula I Jungle Jim Laser Raid Moonbase	???? ???? ???? ???? ????	?? ?? ?? ?? ?? ??						
Motor Mouth Mouse Highway Nuts Pharoah's Curse	????? ???? ???? ????	?? ?? 4 4			X X X		J	CATMOUSE NUTS PHARHCRS

Save Our Ship Silly Safari	???? ????	4 ??
Shoot-Out	????	??
Stone Age	????	??
Tachion Beam	????	??

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
Bogey Blaster	5861 A030	R	4			Χ		J	BOGYBLST
Night Stalker	????	R	4			Χ		J	NIGHTSTK
Universal Chaos	????		4			Χ		J	UNIVCHOS

Χ

J SAVESHIP

X1: Intresting... uses F8 instead of E7 bankswitching!

????

Bump 'n Jump

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Coco Nuts Cosmic Creeps Fast Food	1001 1002 1003	R R R	4 4 4			X X X		J J J	COCONUTS COSMCREP FASTFOOD
Ram- It Star Gunner	1004 1005	ER ER	4 4			X X		J	RAMIT STARGN
Demolition Herby Bouncing Baby Monkeys The Impossible Game	1006 ???? ????	ER UR UR	4 ?? ??			Χ		J	DEMOHRBY

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
King Kong	7-001	R	4			Χ		J	KINGKONG
Jawbreaker	7-002	R	4			Χ		J	JAWBREAK
Threshold	7-003	R	4			Χ		J	THRSH0LD
River Patrol	7 - 004	UR	8		3F	Χ		J	RIVERP
Marauder	7 - 005	ER	4			Χ		J	MARAUDER
Springer	7 - 006	UR	8		3F	Χ		J	SPRINGER
Polaris	7 - 007	ER	8		3F	Χ		J	POLARIS
Miner 2049'er	7 - 008	ER	8		3F	Χ		J	MNR2049R

Espial	7-009 7-010 7-011 7-012	NR NR ER ER	?? ?? 8 8		3F 3F	X X		J	MINRVOL2 ESPIAL
********* * TNT Games *******************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
BMX Airmaster	26192	ER	16		F6	Х		J	BMX_TNT
**************************************	*								
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Worm War I Beany Bopper Fast Eddie Deadly Duck Mega Force Alien Turmoil Fantastic Voyage Crypts of Chaos M*A*S*H Bank Heist Porky's Flash Gordon Revenge of the BS Tomatoes The Earth Dies Screaming Spacemaster X-7 Meltdown Crash Dive Alligator People ***********************************	11020 11022 11029 11031 ?????	U R U R R U R R U R R R R R R R R R R R	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		F8	X X X X X X X X X X X X X X X X X X X	ed!	J J J J	WORMWAR1 BEANYBOP FASTEDIE DEADDUCK MEGAFRCE ALIEN TURMOIL FANTCVOY CRPTCHOS MASH BANKHEST PORKYS FLASHGRD REVNGTOM EARTHDIE SPACMAST CRSHDIVE ALIGPEPL
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Space Jockey	VC 1001 VC 1002 VC 1003 VC 1004 VC 1007 VC 1007 VC 1009	C R U R R ER U	2 4 4 4 4 4 4			X X X X X X	X1 X1	J J J J	SPACJOCK SNEKPEEK WORDZAPR COMANDRD NAMEGAME NAMEGAME TOWERINF

M.A.D	VC 1012	R	4	Χ	J	MAD
Gopher	VC 2001	R	4	Χ	J	GÖPHER
Squeeze Box	VC 2002	ER	4	Χ	J	SQUEEZBX
Eggomania	VC 2003	R	4	Χ	Р	EGGOMANA
Picnic	VC 2004	ER	4	Χ	Р	PICNIC
Piece 'o Cake	VC 2005	ER	4	Χ	Р	PIECECKE
Raft Rider	VC 2006	ER	4	Χ	J	RAFTRIDR
Entombed	VC 2007	ER	4	Χ	J	ENTOMBED
X1: These two carts are	the same exce	pt the	e name.			

********** Universal Gamex ***********

Name	Part #	RA	SZ	SC	BS	IM	SP	СТ	Filename
X-Man	GX-001	UR	4			Χ		J	XMAN

*********** Venturevision ***********

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Rescue Terra I Inner Space	VV2001 ????	ER	4			Х			RESCTER1

*********** * Video Gems **********

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Missile Control	????	ER	4			х			MISLCONT
Mission Survive Steeple Chase	???? ????	ER ER							
Surfer's Paradise Treasure Below	???? ????	ER ER	4			Х			SURFPRDS

********** Wizard Video **********

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename

Texas Chainsaw Massacre Halloween	008 007	ER ER	4 4			X X		J J	TXSCHAIN HALOWEEN	

Note: No repeats are listed (i.e. when the same game is on two double-enders)								ble-enders)		
Name	Part #		SZ						Filename	
Spike's Peak Ghost Manor Chuck Norris Super Kicks Artillery Duel Robin Hood Sir Lancelot Tomarc the Barbarrian Motocross Racer	99001 99002 99003 99004 99005 99006 99007 99008	ER ER ER ER ER ER R	8 8 8 8 8 ??		F8 F8 F8 F8 F8			J J J J	SPIKE_PK GHOSTMAN CHUCKICK ART_DUEL ROBH_P SIRL_N	

Name	Part #	RA	SZ	SC	BS 	IM 	SP	CT	Filename	
Time Warp	????	ER	4			Χ			TIMEWARP	
**************************************	*									
See Emag										
**************************************	*									
Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename	
Dragon Defender Hole Hunter Farmyard Fun 16 Games in 1	TP-605 TP-606 TP-617 ????	ER ER ER ER	4 4 4 ??			X X X			DRGNDFND HOLEHUNT FARMYARD	
Brick Kick Challange Clown Down Town Criminal Pursuit	????? ???? ???? ????	ER ER ER ER	4 4 4 4			X X X		J	BRICKICK CHALENGE CLWNDOWN CRIMLPUR	

Dragon Treasure	????	ER	??			
Frontline	????	ER	??			
Inca Gold	????	ER	??			
laser Volley	????	ER	4	Χ		LASRV0LY
Ski Run	????	ER	4	Χ		SKI RUN
Lie Low	????	ER	??			_
Lost and Found	????	ER	??			
Missile Attack	????	ER	??			
0ops	????	ER	??			
Planet Protector	????	ER	??			
Ski Hunt	????	ER	4	Χ		SKIHUNT
Super-Ferrari	????	ER	4	Χ		SUPFERRI
Tom Boy	????	ER	4	Χ	J	TOMBOY
UFO Patrol	????	ER	4	Χ		UFOPATRL
Wolf Fighting	????	ER	??			
Pink Panther / Probe 2000	????	PR	??	One Proto	Exist	S

* Odd proto's and other intresting things * *****************

Name / Description	SZ	SC	BS	IM	SP	СТ	Filename
Air Raid (Not Air Raiders! By Men-A-Vision Bira Bira (modified Burning Desire) Challange of Nexar (Changed GFX) Circus Atari (Uses joysticks) Colourbar Generator	4 4 4 4			X X X X		J J	COLORBAR
Condor (Similar to Condor Attack) Donkey Kong (Changed GFX) Duck Shot (Positively Weird!) Elk Attack (Mark R. Hahn; 1987) Fishing Derby (changed GFX; from 32-in-1)	4 4 4 8 2		F8	X X X X		J	DUCKSHOT ELK
Freeway (Changed GFX; from the 32-in-1) Galaga (River Raid ripoff) Joust Hack (#1) Joust Hack (#2)	2 4 8 8		F8 F8	X X X		J J	J_HCK2
Joust; Super (modified) Marflegr (PAL version of Sea Hawk) MASH w/ subs (Modified GFX) Missile Command (Changed GFX) Pac-Kong (Changed GFX)	8 4 4 4		F8	X X X X		J J J	SJOUST MARFLEGR MASH_SUB MC-CH PK-CH
Snail Against Squirrel (Changed GFX) Space Raid (Vaguely Threshold-like) Test (Neat little TIA test) Traffic (Dunno; intresting) World End (I Believe this is World? Trap?) Galactic (Starsoft title; not a pirate)	4 4 4 4 4			X X X X X] J J	SVS-CH SPACRAID TEST TRAFFIC
Air-sea Battle (changed GFX) Space Invaders (changed GFX) Magazine Demo 4-game ROM uses F6 bankswitch	2 4 4 16		F6	X X X X]] J	AIRSEA2

^{*} Overflow *

Used to keep Bankzilla's database program happy (mainly PAL versions and game revisions. Prevents cluttering up the main listing)

Name	Part #	RA	SZ	SC	BS	IM	SP	CT	Filename
Pal version of Pele's Soc.	CX2616	??	4			Χ		J	CX2616PL
Taiwanese Enduro	????	??	4			Χ		J	ENDRO_TW
Taiwanese Pele's	????	??	4			Χ		J	PELE_TW
CCE version of Pitfall	????	??	4			Χ		J	PITF_CCE
Taiwanese River Raid	????	??	4			Χ		J	RIVER_TW
Diagnostic Program	????	??	4			Χ			SALTDIAG
Superman; revision 2	????	??	4			Χ		J	SUPRMAN2
Dunno	????	??	2			Χ			XX
Pal version of KLAX	????	??	16	Χ	F6	Χ		J	KLAX
Okie Dokie; Limited	????	??	4			Χ		J	OKIEDLIM
Robot Tank; F8-fixed			8		F8	Χ		J	ROBO_FIX
Surf's Up; original			8		F8	Χ		J	SURFSUP
Dumbo's F. Circ.; PAL	????	PR	8		F8	Χ		J	DUMBO_P
Sir Lancelot; NTSC	????	??	8		F8	Χ		J	SIRL_P
Smurf Rescue; PAL	????	??	8		F8	Χ		J	SMURF_PL
'Chess'; Taiwanese	????	??	2			Χ		J	CHESS_TW
Outerspace; Sears	????	??	2			Χ		J	OUTERSPC
Okie Dokie Proto			2			Χ		J	LT
Taiwanese Bowling	????	??	2			Χ		J	BOWLG_TW
Not a ROM image!	****	**	**	**	**	Χ			EMPTY

####Data End####

Yeppers, some ROM images are better off dead. Either they're exact copies, damaged, or just plain DOA.

XTACK Same as Z-Tack by Bomb.

POLEPOS Pole Position... bad read. 5 bytes bad.

ASTROSMS Same as M-net's Astroblast

Thanks to many people, I have been able to read some prototype carts in! However, the data contained on the carts is identical to the production ones.

Bermuda Triangle, #371

Pac-Man, in an Imagic case!! The board has been wave-soldered; said board is an actual Imagic board, and the chip is a ROM.