

## STAR SPORES

written by David Shadoff

### Memory map:

Start	End	Listing #	Name/Function of Routine(s)
\$2D00	\$4D4B	1	SPORES (main portion)
\$4D4C	\$4DFF	-	UNUSED
\$4E00	\$511E	2	Xplode - ship explosion
\$511F	\$517D	-	UNUSED
\$517E	\$526C	3	Bonus Round Routines
\$526D	\$55B4	4	Data
\$55B5	\$563D	5	PUTSPR - printing of aliens
\$563E	\$5AA5	6	Data
\$5AA6	\$5BDB	7	Line-drawing routine
\$5BDC	\$5CC6	8	Data
\$5CC7	\$5D0A	9	Sound Routine
\$5D0B	\$5D8C	10	Noise Routine
\$5D8D	\$5DC3	11	"Set a Point" Routine
\$5DC4	\$66EA	12	Data

(C) 1984 by David Shadoff

2D00		00001	ORG	\$2D00	
2D00 BD	8899	00002 ORIGIN	JSR	CLRSTR	→ Clear stars in background
2D03 FC	B4B3	00003	LDD	\$B4B3	
2D06 1083	2843	00004	CMPD	#\$2843	→ Check if it's a Dragon 32 (says "C" - part of sign-on message). May not work on all Dragons.
2D0A 26	13	00005	BNE	ORGN1	
2D0C 86	10	00006	LDA	#16	
2D0E B7	3B1C	00007	STA	JOYN4	
2D11 B7	3AE4	00008	STA	JOYN5	→ patch up keyboard values, if Dragon
2D14 86	20	00009	LDA	#32	
2D16 B7	4997	00010	STA	JOYN1	
2D19 B7	49AE	00011	STA	JOYN2	
2D1C B7	49C5	00012	STA	JOYN3	
2D1F 7F	FF40	00013 ORGN1	CLR	\$\$FF40	→ Turn off Drive motor
2D22 86	34	00014	LDA	\$\$34	
2D24 B7	FF03	00015	STA	\$\$FF03	
2D27 86	3C	00016	LDA	\$\$3C	→ Initialize PIA's
2D29 B7	FF23	00017	STA	\$\$FF23	
2D2C 8E	5640	00018	LDX	\$\$5640	
2D2F 10CE	7F00	00019	LDS	\$\$7F00	→ Set up title screen by decoding values from \$5640-\$583F and putting them in \$400-\$EFF, using a decoding technique?
2D33 108E	0400	00020	LDY	\$\$4000	① Take the encoded value (from high memory)
2D37 1F	10	00021 ORGLOP	TFR	X, D	② With this value, a Boolean exclusive-OR is performed with the value \$75
2D39 E7	E2	00022	STB	, -S	③ The result is negated
2D3B A6	80	00023	LDA	, X+	④ Then this result has a Boolean exclusive-OR performed upon it with the least significant byte of the address from which it was taken (high memory). This result is in pseudo-ASCII form, which shows up on the screen as bright letters, on a dark background.
2D3D 88	75	00024	EORA	\$\$75	
2D3F 40		00025	NEGA		
2D40 88	38	00026	ADDA	\$\$38	
2D42 A8	E0	00027	EORA	, S+	
2D44 A7	A0	00028	STA	, Y+	
2D46 8C	5840	00029	CMPX	\$\$5840	
2D49 25	EC	00030	BLO	ORGLOP	
2D4B 86	60	00031	LDA	\$\$60	
2D4D A7	A0	00032 ORGLP1	STA	, Y+	→ Clear high score screen (\$600-\$71F) and "Input name" screen (\$800-\$9FF)
2D4F 108C	0A00	00033	CMPY	\$\$A000	
2D53 25	F8	00034	BLO	ORGLP1	
2D55 12		00035 ORGLPS	NOP		
2D56 8E	0E00	00036	LDX	\$\$E000	
2D59 CC	AAAA	00037	LDD	\$\$AAAA	→ Make a graphics screen full of \$AA's (hopefully red from artifacting)
2D5C ED	81	00038 ORGLP4	STD	, X++	
2D5E 8C	1A00	00039	CMPX	\$\$1A00	
2D61 25	F9	00040	BLO	ORGLP4	
2D63 8E	2D55	00041	LDX	\$\$ORGLPS	
2D66 9F	72	00042	STX	<\$72	→ Make RESET return to program (for turning blue to red).
2D68 86	55	00043	LDA	\$\$55	
2D6A 97	71	00044	STA	<\$71	
2D6C B6	FF22	00045	LDA	\$\$FF22	
2D6F 8A	F8	00046	ORA	\$\$FB	
2D71 B7	FF22	00047	STA	\$\$FF22	
2D74 B7	FFC0	00048	STA	\$\$FFC0	
2D77 B7	FFC2	00049	STA	\$\$FFC2	
2D7A B7	FFC5	00050	STA	\$\$FFC5	
2D7D B7	FFC7	00051	STA	\$\$FFC7	
2D80 B7	FFC9	00052	STA	\$\$FFC9	
2D83 B7	FFCB	00053	STA	\$\$FFCB	
2D86 AD	9F A000	00054 ORGLP6	JSR	[\$\$A0000]	→ Set up screen to view graphics (hopefully red)
2D8A 81	0D	00055	CMPA	\$\$0D	
2D8C 26	F8	00056	BNE	ORGLP6	
2D8E 8E	0400	00057	LDX	\$\$4000	
2D91 A6	84	00058 ORGLP2	LDA	, X	
2D93 A7	89 0200	00059	STA	\$\$200, X	
2D97 A7	89 0400	00060	STA	\$\$400, X	
2D98 A6	89 01E0	00061	LDA	\$\$1E0, X	

2D9F	A7	89 03E0	00062	STA	\$3E0, X
2DA3	A7	89 05E0	00063	STA	\$5E0, X
2DA7	30	01	00064	LEAX	1, X
2DA9	8C	0420	00065	CMPX	#\$4E0
2DAC	25	E3	00066	BLO	ORG <del>LP3</del>
2DAE	A6	84	00067	LDA	, X
2DB0	A7	89 0200	00068	STA	\$200, X
2DB4	A7	89 0201	00069	STA	\$201, X
2DB8	A7	89 0400	00070	STA	\$400, X
2DBC	A7	89 0401	00071	STA	\$401, X
2DC0	A6	88 1E	00072	LDA	\$1E, X
2DC3	A7	89 021E	00073	STA	\$21E, X
2DC7	A7	89 021F	00074	STA	\$21F, X
2DCB	A7	89 041E	00075	STA	\$41E, X
2DCF	A7	89 041F	00076	STA	\$41F, X
2DD3	30	88 20	00077	LEAX	\$20, X
2DD6	8C	05E0	00078	CMPX	#\$5E0
2DD9	25	D3	00079	BLO	ORG <del>LP3</del>
2DDB	8E	062A	00080	LDX	#\$62A
2DDE	CE	2FC5	00081	LDU	#HSMMSG
2DE1	BD	4672	00082	JSR	PRNSTR
2DE4	8E	08AC	00083	LDX	#\$8AC
2DE7	CE	2FD1	00084	LDU	#PLCNMS
2DEA	BD	4672	00085	JSR	PRNSTR
2DED	8E	090B	00086	LDX	#\$90B
2DF0	CE	2FEA	00087	LDU	#SPCMMSG
2DF3	BD	4672	00088	JSR	PRNSTR
2DF6	8E	08E8	00089	LDX	#\$8E8
2DF9	CE	2FDA	00090	LDU	#CNGRMS
2DFC	BD	4672	00091	JSR	PRNSTR
2DFF	8E	0673	00092	LDX	#\$673
2E02	86	70	00093	LDA	#\$70
2E04	7F	4BA0	00094	CLR	LINCNT
2E07	C6	06	00095	ORG <del>LP3</del>	LDB
2E09	F7	4B9C	00096	STB	CNLIN1
2E0C	A7	80	00097	ORG <del>LP3</del>	STA
2E0E	7A	4B9C	00098	DEC	CNLIN1
2E11	26	F9	00099	BNE	ORG <del>LP3</del>
2E13	30	88 1A	00100	LEAX	\$1A, X
2E16	F6	4BA0	00101	LDB	LINCNT
2E19	CB	71	00102	ADDB	#\$71
2E1B	E7	88 D4	00103	STB	-44, X
2E1E	C6	6E	00104	LDB	#\$6E
2E20	E7	88 D5	00105	STB	-43, X
2E23	F6	4BA0	00106	LDB	LINCNT
2E26	5C		00107	INCB	
2E27	F7	4BA0	00108	STB	LINCNT
2E2A	C1	0A	00109	CMPB	#10
2E2C	25	D9	00110	BLO	ORG <del>LP3</del>
2E2E	C6	71	00111	LDB	#\$71
2E30	F7	0786	00112	STB	\$786
2E33	5A		00113	DEC <del>B</del>	
2E34	F7	0787	00114	STB	\$787
2E37	B7	FFC0	00115	TITLP2	STA
2E3A	B7	FFC2	00116	STA	\$FFC2
2E3D	B7	FFC4	00117	STA	\$FFC4
2E40	B6	FF22	00118	LDA	\$FF22
2E43	84	07	00119	ANDA	#7
2E45	B7	FF22	00120	STA	\$FF22
2E48	B7	FFC6	00121	STA	\$FFC6
2E4B	B7	FFC9	00122	STA	\$FFC9
2E4E	B7	FFCA	00123	STA	\$FFCA
2E51	86	B0	00124	LDA	#\$B0
2E53	B7	4A3C	00125	STA	WHOP+2
2E56	B0	4A3A	00126	JSR	WHOP
2E59	86	70	00127	LDA	#\$76

→ Copy graphics border of title screen to high score and "input name" screens.

→ Finish setting up high score and "input name" screens.

→ Set up screen to view title page

→ Make a sound, and replace original value

2E58	B7	4A3C	00128	STA	W1TOP+2	
2E5E	86	01	00129	LDA	#1	→ Fix keyboard rollover table
2E60	B7	0153	00130	STA	\$153	
2E63	B7	0154	00131	STA	\$154	
2E66	7F	2FF7	00132	CLR	BTN1	→ Reset joystick button input
2E69	7F	2FF8	00133	CLR	BTN2	
2E6C	B7	FFC6	00134	TITLEP	STA	\$FFC6
2E6F	B7	FFC9	00135	STA	\$FFC9	→ Always set screen location inside this loop
2E72	B7	FFCA	00136	STA	\$FFCA	
2E75	10CE	7F00	00137	LDS	#\$7F00	→ Always reset stack pointer, just in case ...
2E79	BD	2F7A	00138	JSR	ROTATE	→ Rotate colors.
2E7C	8E	0040	00139	LDX	#\$40	
2E7F	34	10	00140	INPLOP	PSHS	X
2E81	AD	9F A000	00141	JSR	[\$A000]	
2E85	4D		00142	TSTA		
2E86	26	0E	00143	BNE	INLPOT	→ Check \$40 times (64 times) for key input or button pressing. If something was done, go to High Score page, else rotate colors on title page.
2E88	BD	2F60	00144	JSR	BUTON	
2E8B	4D		00145	TSTA		
2E8C	26	08	00146	BNE	INLPOT	
2E8E	35	10	00147	PULS	X	
2E90	30	1F	00148	LEAX	-1, X	
2E92	26	EB	00149	BNE	INPLOP	
2E94	20	D6	00150	BRA	TITLEP	
2E96	35	10	00151	INLPOT	PULS	X → equalize stack
2E98	B7	FFC7	00152	HSPAGE	STA	\$FFC7
2E9B	B7	FFC9	00153	STA	\$FFC9	→ Fix screen location to view high score page
2E9E	B7	FFCA	00154	STA	\$FFCA	
2EA1	CE	2F95	00155	LDU	#JKMSG	
2EA4	8E	07C5	00156	LDX	#\$7C5	→ Print message - Joystick or keyboard
2EA7	BD	4672	00157	JSR	PRNSTR	
2EAA	BD	4A30	00158	JSR	WHOP1	→ Make sound
2EAD	7F	2FF5	00159	CLR	CNTER8	
2EB0	7F	2FF6	00160	CLR	CNTER8+1	
2EB3	BD	2F7A	00161	HSPG1	JSR	ROTATE
2EB6	BE	2FF5	00162	LDX	CNTER8	
2EB9	30	01	00163	LEAX	1, X	
2EBC	8C	0120	00164	CMPX	#\$120	→ Rotate, while checking for key input as before. If too long is taken, it reverts to title page. If capital or lower-case "J" or "K" are input, the next question (No. of players) is asked. If the spacebar or joystick button are pressed, the game starts with the same no. of players as last game (default = 1) with the game input from the device pressed.
2EBE	27	AC	00165	BEQ	TITLEP	
2EC0	BF	2FF5	00166	STX	CNTER8	
2EC3	8E	0040	00167	LDX	#\$40	
2EC6	34	10	00168	INLP1	PSHS	X
2EC8	AD	9F A000	00169	JSR	[\$A000]	
2ECC	81	20	00170	CMPA	#\$20	
2ECE	1027	0077	00171	LREQ	INLP1T	
2ED2	81	4A	00172	CMPA	#\$4A	
2ED4	27	1A	00173	BEQ	INLP1S	
2ED6	81	4B	00174	CMPA	#\$4B	
2ED8	27	16	00175	BEQ	INLP1S	
2EDA	81	6A	00176	CMPA	#\$6A	
2EDC	27	12	00177	BEQ	INLP1S	
2EDE	81	6B	00178	CMPA	#\$6B	
2EE0	27	0E	00179	BEQ	INLP1S	
2EE2	BD	2F60	00180	JSR	BUTON	
2EE5	4D		00181	TSTA		
2EE6	26	61	00182	BNE	INLP1T	
2EE8	35	10	00183	PULS	X	
2EEA	30	1F	00184	LEAX	-1, X	
2EEC	26	D8	00185	BNE	INLP1	
2EEE	20	C3	00186	BRA	HSPG1	
2EF0	35	10	00187	INLP1S	PULS	X
2EF2	84	4F	00188	ANDA	#\$4F	
2EF4	80	4A	00189	SUBA	#\$4A	
2EF6	B7	4B96	00190	STA	JOYKEY	
2EF9	CE	2FAD	00191	LDU	#PLMSG	
2EFC	8E	07C5	00192	LDX	#\$7C5	
2EFF	BD	4672	00193	JSR	'PRNSTR	

2F02	BD	2F7A	00194	HSPG2	JSR	ROTATE
2F05	BE	2FF5	00195		LDX	CNTER8
2F08	30	01	00196		LEAX	1, X
2F0A	8C	0120	00197		CMPX	##\$120
2F0D	1027	FF5B	00198		LBEQ	TITLEP
2F11	BF	2FF5	00199		STX	CNTER8
2F14	8E	0040	00200		LDX	##\$40
2F17	34	10	00201	INLP2	PSHS	X
2F19	AD	9F A000	00202		JSR	[\\$A0000]
2F1D	81	20	00203		CMPA	##\$20
2F1F	27	28	00204		BEQ	INLP1T
2F21	81	31	00205		CMPA	##\$31
2F23	27	12	00206		BEQ	PLY1
2F25	81	32	00207		CMPA	##\$32
2F27	27	16	00208		BEQ	PLY2
2F29	BD	2F60	00209		JSR	BUTON
2F2C	4D		00210		TSTA	
2F2D	26	1A	00211		BNE	INLP1T
2F2F	35	10	00212		PULS	X
2F31	30	1F	00213		LEAX	-1, X
2F33	26	E2	00214		BNE	INLP2
2F35	20	CB	00215		BRA	HSPG2
2F37	35	10	00216	PLY1	PULS	X
2F39	7F	4B9E	00217		CLR	NOPLAY
2F3C	7E	2FF9	00218		JMP	GAME
2F3F	35	10	00219	PLY2	PULS	X
2F41	86	01	00220		LDA	#1
2F43	B7	4B9E	00221		STA	NOPLAY
2F46	7E	2FF9	00222		JMP	GAME
2F49	35	10	00223	INLP1T	PULS	X
2F4B	81	20	00224		CMPA	##\$20
2F4D	27	06	00225		BEQ	KEYB
2F4F	7F	4B96	00226		CLR	JOYKEY
2F52	7E	2FF9	00227		JMP	GAME
2F55	86	01	00228	KEYB	LDA	#1
2F57	B7	4B96	00229		STA	JOYKEY
2F5A	7E	2FF9	00230		JMP	GAME
2F5D	7E	2FF9	00231		JMP	GAME
2F60	B6	2FF7	00232	BUTON	LDA	BTN1
2F63	B7	2FF8	00233		STA	BTN2
2F66	86	FF	00234		LDA	#\$FF
2F68	B7	FF02	00235		STA	\$FF02
2F6B	B6	FF00	00236		LDA	\$FF00
2F6E	43		00237		COMA	
2F6F	84	03	00238		ANDA	#3
2F71	B7	2FF7	00239		STA	BTN1
2F74	88	03	00240		EORA	#3
2F76	B4	2FF8	00241		ANDA	BTN2
2F79	39		00242		RTS	
2F7A	8E	0400	00243	ROTATE	LDX	##\$400
2F7D	A6	84	00244	ROTAT1	LDA	, X
2F7F	81	80	00245		CMPA	##\$80
2F81	25	0A	00246		BCS	LOWER
2F83	80	10	00247		SUBA	##\$10
2F85	81	80	00248		CMPA	##\$80
2F87	24	02	00249		BCC	HIGHER
2F89	88	80	00250		ADDA	##\$80
2F8B	A7	84	00251	HIGHER	STA	, X
2F8D	30	01	00252	LOWER	LEAX	1, X
2F8F	8C	0A00	00253		CMPX	##\$A00
2F92	25	E9	00254		BLO	ROTAT1
2F94	39		00255		RTS	
2F95	4A		00256	JKMSG	FCC	/JOYSTICK OR KEYBOARD ? /
2FAC	00		00257		FCB	0
2FAD	20		00258	PLMSG	FCC	/ 1 OR 2 PLAYERS ? /
2FC4	00		00259		FCB	0

→ Ask if 1 or 2 players wish to play, wait for input, all while rotating.  
If too long is taken, it reverts to the title page.

→ Set up joystick/keyboard flags, and no. of players flags, and go to game (various routines for various input conditions).

→ Check joystick button inputs. BTN1 reflects true state of buttons. BTN2 reflects state the last time the routine was called. A exit non-zero only if button was just let up.

→ Simulation of rotation by changing of color definition of graphics characters.

2FC5	48	00260	HS MSG	FCC	/HIGH SCORES/	
2FD0	00	00261		FCB	0	
2FD1	50	00262	PLCNMS	FCC	/PLAYER 1/	
2FD9	00	00263		FCB	0	
2FDA	45	00264	CNGRMS	FCC	/ENTER YOUR NAME/	
2FE9	00	00265		FCB	0	
2FEA	3E	00266	SPCMMSG	FCC	/> </	
2FF4	00	00267		FCB	0	
2FF5	0000	00268	CNTER8	FDB	0	
2FF7	00	00269	BTN1	FCB	0	
2FF8	00	00270	BTN2	FCB	0	
	0050	00271	CNSTNT	EQU	SCRSTB-SCRtbl	
	4E00	00272	Xplode	EQU	\$4E00	
2FF9 7F	4B9F	00273	GAME	CLR	PLYNO	
2FFC B6	FF22	00274		LDA	\$FF22	
2FFF 8A	F8	00275		ORA	#\$FB	
3001 B7	FF22	00276		STA	\$FF22	
3004 B7	FFC5	00277		STA	\$FFC5	
3007 B7	FFC2	00278		STA	\$FFC2	
300A B7	FFC0	00279		STA	\$FFC0	
300D 8E	FFC6	00280		LDX	#\$FFC6	
3010 CC	0707	00281		LDI	#\$0707	
3013 44		00282	NXTBIT	LSRA		
3014 25	04	00283		BCS	HIGH	
3016 A7	81	00284	LOW	STA	, X++	
3018 20	04	00285		BRA	NXTBT1	
301A 30	01	00286	HIGH	LEAX	1, X	
301C A7	80	00287		STA	, X+	
301E 5A		00288	NXTBT1	DECDB		
301F 26	F2	00289		BNE	NXTBIT	
3021 8E	0E00	00290		LDX	#\$E00	
3024 BF	5D8D	00291		STX	SCRST	
3027 BE	5D8D	00292		LDX	SCRST	
302A CC	0000	00293		LDI	#\$0	
302D ED	81	00294	CLSLOP	STD	, X++	
302F 8C	1A00	00295		CMPX	#\$1A00	
3032 25	F9	00296		BLO	CLSLOP	
3034 108E	4C40	00297		LDY	#\$HTTBL	
3038 86	28	00298		LDA	#40	
303A 6F	A0	00299	CLRSHT	CLR	, Y+ → clear shots from shot table.	
303C 4A		00300		DECA		
303D 26	FB	00301		BNE	CLRSHT	
303F 108E	4C94	00302		LDY	#\$CRTBL	
3043 30	A9 0050	00303		LEAX	CNSTNT, Y	
3047 C6	50	00304		LDB	#80 → Clear scores-to-be-printed table.	
3049 6F	A0	00305	CLRSCTR	CLR	, Y+	
304B 6F	80	00306		CLR	, X+	
304D 5A		00307		DECDB		
304E 26	F9	00308		BNE	CLRSCTR	
3050 8E	4C2E	00309		LDX	#\$PLY1SC	
3053 108E	4C37	00310		LDY	#\$PLY2SC	
3057 86	06	00311		LDA	#6	
3059 C6	0A	00312		LDB	#\$0A → Set up each player's score to be	
305B 6F	80	00313	SCCLLP	CLR	, X+ "000000 02"	
305D 6F	A0	00314		CLR	, Y+	
305F 4A		00315		DECA		
3060 26	F9	00316		BNE	SCCLLP	
3062 E7	80	00317		STB	, X+	
3064 E7	A0	00318		STB	, Y+	
3066 6F	80	00319		CLR	, X+	
3068 6F	A0	00320		CLR	, Y+	
306A C6	03	00321		LDB	#3	
306C E7	84	00322		STB	, X	
306E E7	A4	00323		STB	, Y	
3070 108E	4C94	00324		LDY	#\$CRTBL	
3074 8E	4C2E	00325		LDX	#\$PLY1SC	

(7)

3077	AF	23	00326	STX	.3, Y
3079	86	09	00327	LDA	#9
307B	A7	22	00328	STA	2, Y
307D	86	01	00329	LDA	#1
307F	A7	A4	00330	STA	, Y
3081	A7	21	00331	STA	1, Y
3083	A7	25	00332	STA	5, Y
3085	B6	4B9F	00333	LDA	PLYNO
3088	8E	4BDD	00344	LDX	#CLTBL2
308B	A6	86	00335	LDA	A, X
308D	A7	26	00336	STA	6, Y
308F	31	27	00337	LEAY	7, Y
3091	8E	4C37	00338	LDX	#PLY2SC
3094	AF	23	00339	STX	3, Y
3096	B6	09	00340	LDA	#9
3098	A7	22	00341	STA	2, Y
309A	B6	01	00342	LDA	#1
309C	A7	21	00343	STA	1, Y
309E	A7	25	00344	STA	5, Y
30A0	B6	5C	00345	LDA	#92
30A2	A7	A4	00346	STA	, Y
30A4	7D	4B9E	00347	TST	NOPLAY
30A7	26	02	00348	BNE	STSCUP
30A9	6F	08	00349	CLR	8, X
30AB	B6	4B9F	00350	STSCUP	LDA
30AE	8E	4B1D	00351	LDX	PLYNO
30B1	88	01	00352	EORA	#CLTBL2
30B3	A6	86	00353	LDA	#1
30B5	A7	26	00354	STA	A, X
30B7	BE	5D8D	00355	LDX	6, Y
30BA	5F		00356	CLRB	\$5D8D
30BB	CE	59A0	00357	LDU	00357
30BE	A6	C0	00358	STUPSC	LDA
30C0	A7	80	00359	STA	, U+
30C2	5A		00360	DEC8	, X+
30C3	26	F9	00361	BNE	
30C5	8E	34A3	00362	LDX	STUPSC
30C8	BF	5AA1	00363	STX	#AFTXPD
30CB	FC	0112	00364	LDD	\$5AA1
30CE	F7	5D42	00365	STB	\$112
30D1	B7	5D3F	00366	STA	\$5D42
30D4	B8	B000	00367	EORA	\$5D3F
30D7	B7	5D40	00368	STA	\$B000
30DA	B6	3A	00369	LDU	\$5D40
30DC	B7	5AA5	00370	STA	00369
30DF	B7	4B9A	00371	STA	LDA
30E2	7F	4B90	00372	CLR	, #3A
30E5	7F	4B91	00373	CLR	SHPPOS
30E8	B6	01	00374	STA	SHPOS1
30EA	B7	4B4C	00375	STA	SHOT1F
30ED	B7	4B4D	00376	STA	SHOT2F
30F0	B7	4B67	00377	STA	LDA
30F3	B7	4B68	00378	STA	#1
30F6	7F	4B5A	00379	CLR	BROND1
30F9	7F	4B5B	00380	CLR	BROND2
30FC	B6	04	00381	STA	NOWGUY
30FE	B7	4B23	00382	STA	NWGY1
3101	BD	3D57	00383	JSR	BEEPER
3104	BD	479E	00384	JSR	BEEPR1
3107	7F	4B58	00385	SHEET	SPXCNT
310A	7F	4B24	00386	CLR	NUMPUT
310D	CE	4B2B	00387	CLR	PLYMS
3110	C6	08	00388	LDU	ALARM
3112	F7	4BA3	00389	STA	HTPOD
3115	6F	C0	00390	TBXCL	#TABX
					#TABX
					#8
					LOOPER
					, U+

→ Set up players' scores in scores-to-be-printed table; if player 2 is not playing, reduce his no. of ships to 0

→ Put border layout at top of screen.

→ Set up random no. seed.  
Set player's ship to centre of screen.  
Clear all player's shots.  
Initialize bonus round # to 1,  
Nestie level to "Evil Eyes",  
and special effects value.

→ Put scores on screen.

→ At "Player 1" (or "Player 2") on screen.  
→ Turn off alarm, reset to no flashes left.

→ Clear all the crosshatches from bottom of screen.

3117 7A	4BA3	00391	DEC	LOOPER	
311A 26	F9	00392	BNE	TRXCL	
311C 7F	4B59	00393	CLR	ALARM1	Clear some inconsequential values set players
311F BD	467E	00394	JSR	LEVELS	difficulty level.
3122 7F	4B60	00395	CLR	BONCNT	
3125 86	28	00396	LDA	#\$28	
3127 B7	4B63	00397	STA	CNTER	Fix time-related items
312A 7F	4B5E	00398	CLR	TMCRTC	
312D 86	FF	00399	LDA	#\$FF	
312F B7	4BSF	00400	STA	BARCOL	
3132 86	28	00401	LDA	#40	
3134 B7	4B61	00402	STA	BONAMT	
3137 7F	4B64	00403	CLR	SHTTHR	Fix shot-related items
313A 7F	4B66	00404	CLR	SHPZAP	
313D 16	1911	00405	LBRA	BONCAK	Check for bonus round
3140 CE	4BA6	00406	CHEKD1	LDU	#XPOS
3143 C6	08	00407	LDB	#8	
3145 F7	4B62	00408	STB	CNTDED	Get ready for a loop (to make 8 pods)
3148 F7	4BA3	00409	STB	LOOPER	
314B 6F	44	00410	STRTLIP	CLR	4, U
314D 6F	45	00411	CLR	5, U	Clear some Nastie stuff
314F BD	5D21	00412	RNDXNX	JSR	\$5D21
3152 B6	5D3F	00413	LDA	\$5D3F	
3155 84	7F	00414	ANDA	#\$7F	
3157 81	02	00415	CMPA	#2	
3159 25	F4	00416	BLO	RNDXNX	Get a suitable x value (so the pod is on the screen)
315B 81	78	00417	CMPA	#\$78	
315D 25	02	00418	BLO	GOODX	
315F 20	EE	00419	BRA	RNDXNX	
3161 A7	C4	00420	GOODX	STA	, U
3163 BD	5D21	00421	BADY	JSR	\$5D21
3166 B6	5D3F	00422	LDA	\$5D3F	
3169 84	3F	00423	ANDA	#\$3F	
316B 81	09	00424	CMPA	#9	
316D 25	F4	00425	BLO	BADY	Get a suitable y value.
316F 81	30	00426	CMPA	#\$30	
3171 25	02	00427	BLO	GOODY	
3173 80	18	00428	SUBA	#\$18	
3175 A7	41	00429	GOODY	STA	1, U
3177 BD	5D21	00430	BADPOS	JSR	\$5D21
317A B6	5D3F	00431	LDA	\$5D3F	
317D 81	AA	00432	CMPA	#\$AA	
317F 25	02	00433	BLO	GDPPOS	
3181 80	59	00434	SUBA	#\$59	
3183 1F	89	00435	GDPPOS	TFR	A, B
3185 4F		00436	CLRA		Get a random position in the mor sequence
3186 8E	5BDC	00437	LDX	#\$5BDC	
3189 30	8B	00438	LEAX	D, X	
318B AF	46	00439	STX	6, U	
318D A6	45	00440	LDA	5, U	
318F 48		00441	LSLA		
3190 8E	5DDF	00442	LDX	#\$5DDF	Get proper place in animation sequence
3193 AE	86	00443	LDX	A, X	
3195 AF	48	00444	STX	8, U	
3197 86	01	00445	LDA	#1	
3199 A7	4A	00446	STA	10, U	Give him pseudo-life (pod is dormant)
319B 33	4B	00447	LEAU	11, U	
319D 7A	4BA3	00448	DEC	LOOPER	Go for next
31A0 26	A9	00449	BNE	STRTLIP	
31A2 BD	45EB	00450	CHEKD1	JSR	ON
31A5 CE	4BA6	00451	LDU	#XPOS	Put ship on screen
31A8 C6	08	00452	LDB	#8	
31AA F7	4BA3	00453	STB	LOOPER	
31AD BD	3DDD	00454	STMVLP	JSR	SPORMV
31B0 33	4B	00455	LEAU	, 11, U	Move the spaces (put this on screen)
31B2 7A	4BA3	00456	DEC	LOOPER	

31B5	26	F6	00457	BNE	STMVLP	Put all necessary scores on the screen.
31B7	BD	3D57	00458	LOP	NUMPUT	→ Tick-tack ...
31BA	BD	3288	00459	JSR	TIME	→ More ship (if necessary)
31BD	BD	443E	00460	JSR	MOVSHP	→ More background stars
31C0	BD	4824	00461	JSR	MOVSTR	→ Load x with delay value.
31C3	BE	487D	00462	LDX	LEVDEL	
31C6	86	14	00463	LDA	#20	
31C8	F6	4B65	00464	LDB	SCROFF	
31CB	3D		00465	MUL		→ Make less delay for each rank of numbers printed
31CC	43		00466	COMA		
31CD	53		00467	COMB		
31CE	C3	0001	00468	ADDD	#1	
31D1	30	88	00469	LEAX	D, X	
31D3	7D	497C	00470	TST	STRCNT	
31D6	26	0E	00471	BNE	DESAME	
31D8	8C	0380	00472	CMPX	#\$380	
31DB	25	06	00473	BCS	DELESS	→ Less delay if armor "string" shots are active.
31DD	30	89 FC80	00474	LEAX	-896, X	
31E1	20	03	00475	BRA	DESAME	
31E3	8E	0001	00476	DELESS	LDX	#1
31E6	BF	4B80	00477	DESAME	STX	DELAY
31E9	BE	4B80	00478	LDX	DELAY	
31EC	30	1F	00479	POLLOP	LEAX	→ Delay
31EE	26	FC	00480	BNE	POLLOP	
31F0	10CE	7F00	00481	LDS	#\$7F00	→ Load stack (just in case).
31F4	BD	37E7	00482	JSR	BEEPIT	→ If he earned another player beep.
31F7	7D	4B62	00483	TST	CNTDED	→ Check if Nasties are all dead.
31FA	26	11	00484	BNE	MOVEIT	→ If no...
31FC	7D	4B64	00485	TST	SHTTHR	→ Check if all Nastie shots are off the screen.
31FF	26	0C	00486	BNE	MOVEIT	→ If no...
3201	7D	4B65	00487	TST	SCROFF	→ Check if all bonus point scores are off screen
3204	26	07	00488	BNE	MOVEIT	→ If no...
3206	7A	4B63	00489	DEC	CNTER	
3209	1027	0693	00490	LBEQ	BPOINT	→ If counter is finished counting down... go.
320D	BD	5D21	00491	MOVEIT	JSR	\$5D21
3210	BD	3A4D	00492	JSR	UPDSHT	→ Get random no.
3213	BD	3B8B	00493	JSR	DOSHOT	→ Update players' shots.
3216	CE	4BA6	00494	LDU	#XPDS	
3219	C6	08	00495	LDB	#8	
321B	F7	4BA3	00496	STB	LOOPR	
321E	6D	4A	00497	CKHTL1	TST	10, U
3220	27	03	00498	BEQ	CKHTL2	→ check if any Nasties are hit.
3222	BD	4147	00499	JSR	HITCHK	
3225	33	4B	00500	CKHTL2	LEAU	11, U
3227	7A	4BA3	00501	DEC	LOOPR	
322A	26	F2	00502	BNE	CKHTL1	
322C	7C	4B9B	00503	INC	CYCLE	
322F	B6	4B9B	00504	LDA	CYCLE	
3232	81	02	00505	CMPA	#2	
3234	26	81	00506	BNE	LOP	
3236	7F	4B9B	00507	CLR	CYCLE	
3239	7C	4B4E	00508	INC	CYCLE1	
323C	B6	4B4E	00509	LDA	CYCLE1	
323F	81	04	00510	CMPA	#4	
3241	26	03	00511	BNE	CYCLE2	→ a second counter
3243	7F	4B4E	00512	CLR	CYCLE1	
3246	7F	4B58	00513	CYCLE2	CLR	ALARM
3249	CE	4BA6	00514	LDU	#XPDS	
324C	C6	08	00515	LDB	#8	
324E	F7	4BA3	00516	STB	LOOPR	
3251	BD	560F	00517	ERPTLP	JSR	\$560F
3254	BD	5D21	00518	JSR	\$5D21	
3257	BD	3D0D	00519	JSR	SPORMV	
325A	33	4B	00520	LEAU	11, U	
325C	7A	4BA3	00521	DEC	LOOPR	
325F	26	F0	00522	BNE	ERPTLP	→ erase, update, and reprint each score.

3261	CE	4BAG	00523	LDD	#XPOS	
3264	06	48	00524	LDB	#8	
3266	F7	4BA3	00525	STB	LOOPER	
3269	B6	4B4B	00526	PTSPLP	LDA	BROUND
326C	B1	03	00527	CMPA	#3	→ Put spaces on screen over (in case of erasure from proximity to another being erased in previous loop)
326E	26	05	00528	BNE	PTSP1	
3270	7D	4B4E	00529	TST	CYCLE1	
3273	26	03	00530	BNE	PTSP2	
3275	BD	55B5	00531	PTSP1	JSR	\$55B5
3278	33	48	00532	PTSP2	LEAU	11,U
327A	7A	4BA3	00533	DEC	LOOPER	
327D	26	EA	00534	BNE	PTSPLP	
327F	BD	48BF	00535	JSR	PUTSTR	→ put stars
3282	BD	4AA9	00536	JSR	PUTX	→ put crosshatches at bottom (Bonus round).
3285	16	FF2F	00537	LBRA	LOP	→ keep on loopin'
3288	7D	4B62	00538	TIME	TST	CNTDED
328B	26	01	00539	BNE	TIME1	
328D	39		00540	RTS		
328E	B6	4B60	00541	TIME1	LDA	BONCNT
3291	4C		00542	INCA		
3292	B7	4B60	00543	STA	BONCNT	
3295	B1	4B7F	00544	CMPA	BONBYT	
3298	26	29	00545	BNE	BONRET	→ Count time up, unless Nodles are dead
329A	7F	4B60	00546	CLR	BONCNT	
329D	7A	4B61	00547	DEC	BONAMT	
32A0	1027	00CB	00548	LBEQ	ZAPIT	
32A4	BD	3321	00549	JSR	TMLNPT	
32A7	B6	4B61	00550	LDA	BONAMT	
32AA	4F		00551	CLICK	CLRA	
32AB	F6	4B61	00552	LDB	BONAMT	
32AE	58		00553	LSLB		
32AF	CB	10	00554	ADDB	##\$10	
32B1	FD	5CF2	00555	STD	\$5CF2	
32B4	FD	5D03	00556	STD	\$5D03	
32B7	BD	5CC8	00557	JSR	\$5CC8	
32BA	BD	5CC8	00558	JSR	\$5CC8	
32BD	BD	5CC8	00559	JSR	\$5CC8	
32C0	BD	5CC8	00560	JSR	\$5CC8	
32C3	B6	4B5E	00561	BONRET	LDA	TMCRTC
32C6	4D		00562	TSTA		
32C7	27	3A	00563	BEQ	NOCRTC	
32C9	4A		00564	DECA		
32CA	B7	4B5E	00565	STA	TMCRTC	
32CD	81	05	00566	CMPA	#5	
32CF	24	05	00567	BCC	BLNKT1	
32D1	BD	3313	00568	JSR	TMLNOT	
32D4	20	17	00569	BRA	BLNKET	
32D6	8E	0E2B	00570	BLNKT1	LDX	#\$E2B
32D9	C6	0A	00571	LDB	#10	
32DB	6F	89 0080	00572	BLNKT4	CLR	128,X
32DF	6F	88 60	00573	CLR	96,X	→ If time approaches zero, a warning sounds, and the two flags
32E2	6F	88 40	00574	CLR	64,X	
32E5	6F	88 20	00575	CLR	32,X	
32E8	6F	80	00576	CLR	,X+	
32EA	5A		00577	DEC8		
32EB	26	EE	00578	BNE	BLNKT4	
32ED	CC	0012	00579	BLNKT	LDD	##\$12
32F0	FD	5CF2	00580	STD	\$5CF2	
32F3	FD	5D03	00581	STD	\$5D03	
32F6	C6	0A	00582	LDB	#10	
32F8	34	04	00583	BLNKT	PSHS	B
32FA	BD	5CC8	00584	JSR	\$5CC8	
32FD	35	04	00585	PULS	B	
32FF	5A		00586	DEC8		
3300	26	F6	00587	BNE	,BLNKT	
3302	39		00588	RTS		

3303	86	4B61	00589	NOVRTC	LDA	BONAMT	(11)
3306	81	09	00590		CMPA	#9	
3308	24	05	00591		BCC	TMPT6	
330A	86	08	00592		LDA	#8	
330C	B7	4B5E	00593		STA	TMCRTC	
330F	BD	3321	00594	TMPT6	JSR	TMLNPT	
3312	39		00595	BONRT1	RTS		
3313	86	AA	00596	TMLNOT	LDA	#\$AA	
3315	B7	4B5F	00597		STA	BARCOL	
3318	BD	3321	00598		JSR	TMLNPT	
331B	86	00	00599		LDA	#\$0	
331D	B7	4B5F	00600		STA	BARCOL	
3320	39		00601		RTS		
3321	8E	0E2B	00602	TMLNPT	LDX	#\$E2B	
3324	B6	4B61	00603		LDA	BONAMT	
3327	81	04	00604	TMLN2	CMPA	#4	
3329	24	1B	00605		BCC	NXTMPT	
332B	108E	336B	00606		LDY	#TMTBL	
332F	E6	A6	00607		LDB	A, Y	
3331	F4	4B5F	00608		ANDB	BARCOL	
3334	E7	80	00609		STB	, X+	
3336	6F	84	00610		CLR	, X	
3338	B6	59D5	00611		LDA	\$59D5	
333B	B7	0E35	00612		STA	\$E35	
333E	B6	59D6	00613		LDA	\$59D6	
3341	B7	0E36	00614		STA	\$E36	
3344	20	0B	00615		BRA	TMLN9	
3346	C6	FF	00616	NXTMPT	LDB	#\$FF	
3348	F4	4B5F	00617		ANDB	BARCOL	
334B	E7	80	00618		STB	, X+	
334D	80	04	00619		SUBA	#4	
334F	20	D6	00620		BRA	TMLN2	
3351	8E	0E2B	00621	TMLN9	LDX	#\$E2B	
3354	C6	0A	00622		LDB	#10	
3356	A6	84	00623	TMLN91	LDA	, X	
3358	A7	88 20	00624		STA	32, X	
335B	A7	88 40	00625		STA	64, X	
335E	A7	88 60	00626		STA	96, X	
3361	A7	89 0080	00627		STA	128, X	
3365	30	01	00628		LEAX	1, X	
3367	5A		00629		DEC8		
3368	26	EC	00630		BNE	TMLN91	
336A	39		00631		RTS		
336B		00	00632	TMTBL	FCB	0	
336C		C0	00633		FCB	\$C0	
336D		F0	00634		FCB	\$F0	
336E		FC	00635		FCB	\$FC	
336F	8E	0E2B	00636	ZAPIT	LDX	#\$E2B	
3372	6F	84	00637		CLR	, X	
3374	6F	88 20	00638		CLR	32, X	
3377	6F	88 40	00639		CLR	64, X	
337A	6F	88 60	00640		CLR	96, X	
337D	6F	89 0080	00641		CLR	128, X	
3381	CE	4BA6	00642		LDU	#XPOS	
3384	C6	08	00643		LDB	#8	
3386	F7	4BA4	00644		STB	LOP1	
3389	BD	560F	00645	LOPLOP	JSR	\$560F	
338C	33	48	00646		LEAU	11, U	
338E	7A	4BA4	00647		DEC	LOP1	
3391	26	F6	00648		BNE	LOPLOP	
3393	CE	4BA6	00649		LDU	#XPOS	
3396	C6	08	00650		LDB	#8	
3398	F7	4BA4	00651		STB	LOP1	
339B	6D	4A	00652	BLEPLP	TST	10. U	
339D	27	2C	00653		BEQ	NOBODY	
339F	6D	45	00654		TST	5, U	

→ If time is low, set flag, put time line

→ Put red time line down next will be black  
(simulate flashing)

→ put time line on screen.

Table of partial-byte line bits

→ Clear remains of line (fuel is gone).

→ Erase Nasties

(12)

33A1	26	21	00655	BNE	CHNGUY
33A3	B6	4B67	00656	LDA	NOWGUY
33A6	A7	45	00657	STA	5, U
33A8	E6	45	00658	LDB	5, U
33AA	4F		00659	CLRA	
33AB	50		00660	NEGB	
33AC	CB	0A	00661	ADDB	#10
33AE	58		00662	LSLB	
33AF	58		00663	LSLB	
33B0	58		00664	LSLB	
33B1	FD	5CF2	00665	STD	\$5CF2
33B4	FD	5D03	00666	STD	\$5D03
33B7	C6	10	00667	LDB	#16
33B9	F7	4BA5	00668	STB	LOP2
33BC	BD	5CC8	00669	BLPLP1	JSR \$5CC8
33BF	7A	4BA5	00670	DEC	LOP2
33C2	26	F8	00671	BNE	BLPLP1
33C4	34	30	00672	PSHS	Y, X
33C6	BD	55B5	00673	JSR	\$55B5
33C9	35	30	00674	PULS	X, Y
33CB	33	48	00675	NOBODY	LEAU 11, U
33CD	7A	4BA4	00676	DEC	LOP1
33D0	26	C9	00677	BNE	BLEPLP
33D2	CE	4BA6	00678	LDU	#XPOS
33D5	108E	4C40	00679	LDY	#SHTTBL
33D9	C6	08	00680	LDB	#8
33DB	F7	4BA4	00681	STB	LOP1
33DE	6D	4A	00682	LOP63	TST 10, U
33E0	27	2A	00683	BEQ	NBODY
33E2	8E	5DD6	00684	LDX	#\$5DD6
33E5	A6	45	00685	LDA	5, U
33E7	A6	86	00686	LDA	A, X
33E9	8A	80	00687	ORA	#\$80
33EB	40		00688	NEGA	
33EC	44		00689	LSRA	
33ED	4A		00690	DECA	
33EE	AB	C4	00691	ADDA	, U
33F0	A7	A4	00692	STA	, Y
33F2	A6	43	00693	LDA	3, U
33F4	AB	41	00694	ADDA	1, U
33F6	4A		00695	DECA	
33F7	A7	21	00696	STA	1, Y
33F9	86	01	00697	LDA	#1
33FB	A7	22	00698	STA	2, Y
33FD	4C		00699	INCA	
33FE	A7	23	00700	STA	3, Y
3400	6F	24	00701	CLR	4, Y
3402	34	20	00702	PSHS	Y
3404	7F	4B66	00703	CLR	SHPZAP
3407	BD	3B8B	00704	JSR	DOSHOT
340A	35	20	00705	PULS	Y
340C	33	4B	00706	NBODY	LEAU 11, U
340E	7A	4BA4	00707	DEC	LOP1
3411	26	CB	00708	BNE	LOP63
3413	7D	4B4B	00709	BLOWUP	TST BROUND
3416	27	3A	00710	BEQ	BLOWP1
3418	7F	4B4B	00711	CLR	BROUND
341B	7F	4B67	00712	CLR	NOWGUY
341E	BD	36E0	00713	JSR	DECFX
3421	7F	4B90	00714	CLR	SHOT1F
3424	7F	4B91	00715	CLR	SHOT2F
3427	BD	45EB	00716	JSR	ON
342A	BD	48BF	00717	JSR	PUTSTR
342D	8E	0000	00718	LDX	#0
3430	BD	4B09	00719	JSR	DELAY3
3433	108F	4C40	00720	LDY	#SHTTBL

→ For all live and half-live Nasties, change them to real live Nasties and loop

→ Make all Nasties do a zap-shot at ship

→ If only a bonus round, fix a few things: clear all shots and bonus scores, do special effects, put stars, and let player keep playing

3437	86	28	00721	LDA	#40
3439	6F	A0	00722	CLRSW	, Y+
343B	4A		00723	DECA	
343C	26	FB	00724	BNE	CLRSW
343E	108E	4C94	00725	LDY	#SCRTBL
3442	30	A9 0050	00726	LEAX	CNSTNT, Y
3446	C6	50	00727	LDB	#80
3448	6F	A0	00728	CLRSCB	CLR, Y+
344A	6F	80	00729	CLR	, X+
344C	5A		00730	DEC B	
344D	26	F9	00731	BNE	CLRSCB
344F	7E	3A2A	00732	JMP	<u>BRONUP</u>
3452	4F		00733	BLOWWP1	CLRA
3453	B6	4B9F	00734	LDA	PLYNO
3456	48		00735	LSLA	
3457	8E	4C2A	00736	LDX	#PLYNOT
345A	AE	86	00737	LDX	A, X
345C	BF	4B8D	00738	STX	YSTOR
345F	30	08	00739	LEAX	B, X
3461	6A	84	00740	DEC	, X
3463	24	08	00741	BCC	NODCNX
3465	6A	1F	00742	DEC	-1, X
3467	A6	84	00743	LDA	, X
3469	BB	0A	00744	ADDA	#\$0A
346B	A7	84	00745	STA	, X
346D	BE	4B8D	00746	NODCNX	LDX YSTOR
3470	108E	4C94	00747	LDY	#SCRTBL
3474	B6	4B9F	00748	LDA	PLYNO
3477	C6	5B	00749	LDB	#91
3479	3D		00750	MUL	
347A	CB	01	00751	ADDB	#1
347C	6D	25	00752	READY7	TST 5, Y
347E	27	08	00753	BEQ	READY8
3480	86	02	00754	LDA	#2
3482	A7	25	00755	STA	5, Y
3484	31	27	00756	LEAY	7, Y
3486	20	F4	00757	BRA	READY7
3488	86	01	00758	READY8	LDA #1
348A	A7	25	00759	STA	5, Y
348C	A7	21	00760	STA	1, Y
348E	AF	23	00761	STX	3, Y
3490	86	FF	00762	LDA	#\$FF
3492	A7	26	00763	STA	6, Y
3494	E7	A4	00764	STB	, Y
3496	86	09	00765	LDA	#9
3498	A7	22	00766	STA	2, Y
349A	BD	3D57	00767	JSR	NUMPUT
349D	BD	3D57	00768	JSR	NUMPUT
34A0	7E	4E00	00769	JMP	<u>Xplode</u>
34A3	BD	48E4	00770	AFTXP0	JSR MKSTBL
34A6	B6	4B9F	00771	LDA	PLYNO
34A9	B8	4B9E	00772	EORA	NOPLAY
34AC	B7	4B9F	00773	STA	PLYNO
34AF	8E	4C2A	00774	LDX	#PLYNOT
34B2	5F		00775	CLRB	
34B3	48		00776	LSLA	
34B4	AE	86	00777	LDX	A, X
34B6	30	08	00778	LEAX	B, X
34B8	6D	84	00779	TST	, X
34BA	1026	016F	00780	LBNE	AFTXP2
34BE	6D	1F	00781	TST	-1, X
34C0	1026	0169	00782	LBNE	AFTXP2
34C4	F6	4B9E	00783	LDB	NOPLAY
34C7	5D		00784	TSTB	
34C8	27	1D	00785	BEQ	GAMEND
34CA	B6	4B9F	00786	LDA	PLYNO

→ This is a real loss - decrement no. of players, and explode.

→ Make a new star table, change players if necessary

34CD	88	01	00787	EORA	#I
34CF	B7	4B9F	00788	STA	PLYNO
34D2	8E	4C2A	00789	LDX	#PLYNOT
34D5	5F		00790	CLRB	
34D6	48		00791	LSLA	
34D7	AE	86	00792	LDX	A, X
34D9	30	08	00793	LEAX	B, X
34DB	6D	84	00794	TST	, X
34DD	1026	0176	00795	LBNE	AFTXP1
34E1	6D	1F	00796	TST	-1, X
34E3	1026	0170	00797	LBNE	AFTXP1
34E7	BD	36C0	00798	GAMEND	SPFX
34EA	BD	476E	00799	JSR	GMOVER
34ED	8E	4C2E	00800	LDX	#PLY1SC
34F0	108E	4C37	00801	LDY	#PLY2SC
34F4	C6	06	00802	LDB	#6
34F6	A6	84	00803	INSCND	LDA , X
34F8	8B	70	00804	ADDA	#\$70
34FA	A7	80	00805	STA	, X+
34FC	A6	A4	00806	LDA	, Y
34FE	8B	70	00807	ADDA	#\$70
3500	A7	A0	00808	STA	, Y+
3502	5A		00809	DEC8	
3503	26	F1	00810	BNE	INSCND
3505	8E	4C2E	00811	HISCK	LDX #PLY1SC
3508	CE	4C37	00812	LDU	#PLY2SC
350B	BD	358A	00813	JSR	COMPAR
350E	86	0A	00814	LDA	#10
3510	B7	4B51	00815	STA	PERMUT
3513	B6	4B52	00816	LDA	PLAYER
3516	8B	70	00817	ADDA	#\$70
3518	B7	08B3	00818	STA	\$8B3
351B	8E	0673	00819	LDX	#\$673
351E	1F	32	00820	TFR	U, Y
3520	34	20	00821	HISCK2	PSHS Y
3522	BD	358A	00822	JSR	COMPAR
3525	11A3	E1	00823	CMPU	, S++
3528	27	10	00824	BEQ	MOVBAK
352A	7A	4B51	00825	DEC	PERMUT
352D	1027	F906	00826	LBEQ	TITLP2
3531	33	C8 20	00827	LEAU	32, U
3534	1E	13	00828	EXG	X, U
3536	1F	23	00829	TFR	Y, U
3538	20	E6	00830	BRA	HISCK2
353A	7A	4B51	00831	MOVBAK	DEC PERMUT
353D	FF	4B53	00832	STU	SCRPOS
3540	34	70	00833	PSHS	U, Y, X
3542	BD	3581	00834	JSR	INPUT
3545	35	70	00835	PULS	X, Y, U
3547	B6	4B51	00836	LDA	PERMUT
354A	B7	4B50	00837	STA	PRMUT1
354D	34	30	00838	PSHS	Y, X
354F	8E	078A	00839	LDX	#\$78A
3552	4D		00840	TSTA	
3553	27	12	00841	BEQ	MVBAKE
3555	C6	0F	00842	MVBAK1	LDB #15
3557	A6	88 E0	00843	MVBAK2	LDA -32, X
355A	A7	80	00844	STA	, X+
355C	5A		00845	DEC8	
355D	26	F8	00846	BNE	MVBAK2
355F	30	88 D1	00847	LEAX	-47, X
3562	7A	4B50	00848	DEC	PRMUT1
3565	26	EE	00849	BNE	MVBAK1
3567	108E	090C	00850	MVBAKE	LDY #\$90C
356B	C6	08	00851	LDB	#8
356D	A6	A0	00852	MVBAK3	LDA , Y+

→ Do special effects, print "Game Over", check larger of the two scores, to see if it would be in the high score race (if only one player, player two's score is 000000)

→ Insert name in appropriate place, after moving appropriate other names down the list. Then make that player's score zero, and go back to check between the non-zero score and the other. Eventually both will be zero, and neither will be eligible for a high score.

356F	A7	80	00853	STA	, X+
3571	5A		00854	DEC B	
3572	26	F9	00855	BNE	MVBAK3
3574	30	01	00856	LEAX	, X
3576	C6	06	00857	LDB	#6
3578	10BE	4B53	00858	LDY	SCRPOS
357C	A6	A4	00859	MVBAK4	LDA , Y
357E	6F	A0	00860	CLR	, Y+
3580	A7	80	00861	STA	, X+
3582	5A		00862	DEC B	
3583	26	F7	00863	BNE	MVBAK4
3585	35	30	00864	PULS	X, Y
3587	7E	3505	00865	JMP	HISSCK
358A	34	40	00866	COMPAR	PSHS U
358C	34	10	00867	PSHS	X
358E	C6	06	00868	LDB	#6
3590	A6	84	00869	COMP R2	LDA , X
3592	A1	C4	00870	CMP A	, U
3594	25	12	00871	BCS	HLBIGR
3596	26	07	00872	BNE	DEBIGR
3598	30	01	00873	LEAX	, X
359A	33	41	00874	LEAU	, U
359C	5A		00875	DEC B	
359D	26	F1	00876	BNE	COMP R2
359F	86	01	00877	DEBIGR	LDA #1
35A1	B7	4B52	00878	STA	PLAYER
35A4	35	40	00879	PULS	U
35A6	35	90	00880	PULS	X, PC
35A8	86	02	00881	HLBIGR	LDA #2
35AA	B7	4B52	00882	STA	PLAYER
35AD	35	10	00883	PULS	X
35AF	35	C0	00884	PULS	U, PC
35B1	B6	FF22	00885	INPUT	LDA \$FF22
35B4	84	07	00886	AND A	#7
35B6	B7	FF22	00887	STA	\$FF22
35B9	B7	FFC0	00888	STA	\$FFC0
35BC	B7	FFC2	00889	STA	\$FFC2
35BF	B7	FFC4	00890	STA	\$FFC4
35C2	B7	FFC6	00891	STA	\$FFC6
35C5	B7	FFC8	00892	STA	\$FFC8
35C8	B7	FFCB	00893	STA	\$FFCB
35CB	7F	4B55	00894	CLR	INPLCE
35CE	8E	090C	00895	LDX	#\$90C
35D1	BF	4B56	00896	STX	INPLOC
35D4	86	60	00897	LDA	#\$60
35D6	C6	08	00898	LDB	#8
35D8	A7	80	00899	INPLP	STA , X+
35DA	5A		00900	DEC B	
35DB	26	FB	00901	BNE	INPLP
35DD	BD	2F7A	00902	INPLP1	JSR ROTATE
35E0	10BE	0020	00903	LDY	#\$20
35E4	34	20	00904	INPLP2	PSHS Y
35E6	AD	9F A000	00905	JSR	[\$A0000]
35EA	35	20	00906	PULS	Y
35EC	81	08	00907	CMP A	#8
35EE	27	11	00908	BEQ	BACKP1
35F0	81	0D	00909	CMP A	#\$0D
35F2	27	23	00910	BEQ	ENDIT6
35F4	81	20	00911	CMP A	#\$20
35F6	25	03	00912	BCS	INPLP3
35F8	BD	3618	00913	JSR	PTCHR1
35FB	31	3F	00914	INPLP3	LEAY -1, Y
35FD	26	E5	00915	BNE	INPLP2
35FF	20	DC	00916	BRA	INPLP1
3601	7D	4B55	00917	BACKP1	TST INPLCE
3604	27	DE	00918	BEQ	INPLP2

→ Check between two scores pointed to by X and U

→ Flip to name input screen, rotate border, and input name.

3606 7A	4B55	00919	DEC	INPLCE
3609 BE	4B56	00920	LDX	INPLDC
360C 30	1F	00921	LEAX	-1, X
360E BF	4B56	00922	STX	INPLOC
3611 86	60	00923	LDA	#\$60
3613 A7	84	00924	STA	, X
3615 20	CD	00925	BRA	INPLP2
3617 39		00926	ENDIT6	RTS
3618 F6	4B55	00927	PTCHR1	LDB INPLCE
361B C1	08	00928	CMPB	#8
361D 27	0D	00929	BEQ	PTCHR2
361F 8A	40	00930	ORA	#\$40
3621 BE	4B56	00931	LDX	INPLOC
3624 A7	80	00932	STA	, X+
3626 BF	4B56	00933	STX	INPLOC
3629 7C	4B55	00934	INC	INPLCE
362C 39		00935	PTCHR2	RTS
362D F6	4B9E	00936	AFTXP2	LDB NOPLAY
3630 5D		00937	TSTB	
3631 27	24	00938	BEQ	AFTXP1
3633 B6	4B67	00939	LDA	NOWGUY
3636 F6	4B68	00940	LDB	NWGY1
3639 B7	4B68	00941	STA	NWGY1
363C F7	4B67	00942	STB	NOWGUY
363F B6	4B5A	00943	LDA	BEEPER
3642 F6	4B5B	00944	LDB	BEEPRI
3645 F7	4B5A	00945	STB	BEEPER
3648 B7	4B5B	00946	STA	BEEPRI
364B B6	4B4C	00947	LDA	BROND1
364E F6	4B4D	00948	LDB	BROND2
3651 F7	4B4C	00949	STB	BROND1
3654 B7	4B4D	00950	STA	BROND2
3657 108E	4C94	00951	AFTXP1	LDY #SCRtbl
365B C6	3A	00952	LDB	#\$3A
365D F7	4B9A	00953	STB	SHPOS1
3660 F7	5A55	00954	STB	SHPOS
3663 CE	4C2A	00955	LDU	#PLYNOT
3666 AE	C4	00956	LDX	, U
3668 AF	23	00957	STX	3, Y
366A AE	42	00958	LDX	2, U
366C AF	2A	00959	STX	10, Y
366E 86	01	00960	LDA	#1
3670 A7	25	00961	STA	5, Y
3672 A7	21	00962	STA	1, Y
3674 A7	28	00963	STA	8, Y
3676 A7	2C	00964	STA	12, Y
3678 A7	A4	00965	STA	, Y
367A 86	09	00966	LDA	#9
367C A7	22	00967	STA	2, Y
367E A7	29	00968	STA	9, Y
3680 B6	4B9F	00969	LDA	PLYNO
3683 8E	4B1D	00970	LDX	#CLtbl2
3686 A6	86	00971	LDA	A, X
3688 A7	26	00972	STA	6, Y
368A 88	AA	00973	EORA	#\$AA
368C A7	2D	00974	STA	13, Y
368E 86	5C	00975	LDA	#92
3690 A7	27	00976	STA	7, Y
3692 BD	3D57	00977	JSR	NUMPUT
3695 BD	36C0	00978	JSR	SPFX
3698 BD	479E	00979	JSR	PLYMS
369B 108E	4C40	00980	LDY	#SHTtbl
369F 86	28	00981	LDA	#\$40
36A1 6F	A0	00982	CLRST1	CLR , Y+
36A3 4A		00983	DECA	,
36A4 26	FB	00984	RNF	CLRST1

→ Switch player-dependent variables

→ Put ship in centre of screen, change colors  
of scores, (to indicate which player is playing),  
make a special effect occur, put player  
message on screen

36AB 108E	4C94	00985	LDY	#SCRTBL
36AA 30	A9 0050	00986	LEAX	CNSTNT, Y
36AE C6	50	00987	LDB	#80
36B0 6F	A0	00988 CLRSC1	CLR	, Y+
36B2 6F	B0	00989	CLR	, X+
36B4 5A		00990	DEC B	
36B5 26	F9	00991	BNE	CLRSC1
36B7 7F	4B90	00992	CLR	SHOT1F
36BA 7F	4B91	00993	CLR	SHOT2F
36BD 7E	4AEC	00994	JMP	BONRND
36C0 7A	4B23	00995 SPFX	DEC	SPXCNT
36C3 26	05	00996	BNE	NXTFX
36C5 86	04	00997	LDA	#4
36C7 B7	4B23	00998	STA	SPXCNT
36CA 4F		00999 NXTFX	CLRA	
36CB B6	4B23	01000	LDA	SPXCNT
36CE 48		01001	LSLA	
36CF BE	36D6	01002	LDX	#SPXTBL
36D2 AE	86	01003	LDX	A, X
36D4 6E	84	01004	JMP	, X
36D6	0000	01005 SPXTBL	FDB	0
36D8	36E0	01006	FDB	DECFX
36DA	3720	01007	FDB	SCRLFX
36DC	3765	01008	FDB	BARSFX
36DE	3789	01009	FDB	NOFX
36E0 BE	5D8D	01010 DECFX	LDX	\$5D8D
36E3 30	89 0120	01011	LEAX	288, X
36E7 86	0A	01012	LDA	#\$0A
36E9 B7	4BA3	01013	STA	LOOPER
36EC 6D	84	01014 DCNXF1	TST	, X
36EE 27	1B	01015	BEQ	DCNXFX
36F0 64	84	01016	LSR	, X
36F2 E6	84	01017	LDB	, X
36F4 C4	0F	01018	ANDB	#\$0F
36F6 5C		01019	INC B	
36F7 4F		01020	CLRA	
36F8 FD	5CF2	01021	STD	\$5CF2
36FB FD	5D03	01022	STD	\$5D03
36FE C6	04	01023	LDB	#4
3700 F7	4BA0	01024	STB	LINCNT
3703 BD	5CC8	01025 DCFXSN	JSR	\$5CC8
3706 7A	4BA0	01026	DEC	LINCNT
3709 26	F8	01027	BNE	DCFXSN
370B 30	01	01028 DCNXFX	LEAX	1, X
370D 8C	1A00	01029	CMPX	#\$1A00
3710 25	DA	01030	BLO	DCNXF1
3712 7A	4BA3	01031	DEC	LOOPER
3715 27	4D	01032	BEQ	OUTFX
3717 BE	5D8D	01033	LDX	\$5D8D
371A 30	89 0120	01034	LEAX	288, X
371E 20	CC	01035	BRA	DCNXF1
3720 BE	5D8D	01036 SCRLFX	LDX	\$5D8D
3723 30	89 0120	01037	LEAX	288, X
3727 7F	4BA3	01038	CLR	LOOPER
372A A6	88 40	01039 SCRL1	LDA	\$40, X
372D A7	80	01040	STA	, X+
372F 8C	19C0	01041	CMPX	#\$19C0
3732 25	F6	01042	BLO	SCRL1
3734 6F	80	01043 CNTSCR	CLR	, X+
3736 8C	1A00	01044	CMPX	#\$1A00
3739 25	F9	01045	BLO	CNTSCR
373B 7A	4BA3	01046	DEC	LOOPER
373E F6	4BA3	01047	LDB	LOOPER
3741 C1	D5	01048	CMPB	#\$D5
3743 27	1F	01049	BED	OUTFX
3745 4F		01050	CLRA	

(17)

→ Clear all shots and bonus points from screen, go for next wave of attackers

→ Determine which effect is to be used.

→ Clear screen by shifting bytes right, and making sound if it is to be shifted. When screen is blank (except for score), it exits routine.

→ Scroll graphics up off the screen, making sound off to way

3746 C0	D0	01051	SUBB	#\$D0
3748 FD	5CF2	01052	STD	\$5CF2
374B FD	5D03	01053	STD	\$5D03
374E C6	0A	01054	LDB	#10
3750 F7	4BA0	01055	STB	LINCNT
3753 BD	5CC8	01056	SCRSND	JSR \$5CC8
3756 7A	4BA0	01057	DEC	LINCNT
3759 26	F8	01058	BNE	SCRSND
375B BE	5D8D	01059	LDX	\$5D8D
375E 30	89 0120	01060	LEAX	288, X
3762 20	C6	01061	BRA	SCRL1
3764 39		01062	OUTFX	RTS
3765 BE	5D8D	01063	BARSFX	LDX \$5D8D
3768 30	89 0120	01064	LEAX	288, X
376C 86	FF	01065	MKWHT	LDA #\$FF
376E A7	80	01066	STA	, X+
3770 8C	0F40	01067	CMPX	#\$F40
3773 26	F7	01068	BNE	MKWHT
3775 A6	88 E0	01069	CONTBR	LDA -32, X
3778 6F	88 E0	01070	CLR	-32, X
377B A7	80	01071	STA	, X+
377D 8C	1A20	01072	CMPX	#\$1A20
3780 24	E2	01073	BHS	OUTFX
3782 1F	10	01074	TFR	X, D
3784 FD	4B5C	01075	STD	STORY
3787 C4	1F	01076	ANDB	#\$1F
3789 26	EA	01077	BNE	CONTBR
378B FC	4B5C	01078	LDD	STORY
378E 46		01079	RORA	
378F 56		01080	RORB	
3790 46		01081	RORA	
3791 56		01082	RORB	
3792 46		01083	RORA	
3793 56		01084	RORB	
3794 46		01085	RORA	
3795 56		01086	RORB	
3796 46		01087	RORA	
3797 56		01088	RORB	
3798 C4	0F	01089	ANDB	#\$0F
379A 5C		01090	INCB	
379B 4F		01091	CLRA	
379C FD	5CF2	01092	STD	\$5CF2
379F FD	5D03	01093	STD	\$5D03
37A2 C6	30	01094	LDB	#\$30
37A4 F7	4BA0	01095	STB	LINCNT
37A7 BD	5CC8	01096	BRFXSN	JSR \$5CC8
37AA 7A	4BA0	01097	DEC	LINCNT
37AD 26	F8	01098	BNE	BRFXSN
37AF 108E	0480	01099	LDY	#\$480
37B3 31	3F	01100	BRSFX1	LEAY -1, Y
37B5 26	FC	01101	BNE	BRSFX1
37B7 20	BC	01102	BRA	CONTBR
37B9 8E	8000	01103	NOFX	LDX #\$8000
37BC 30	1F	01104	NOFX1	LEAX -1, X
37BE 26	FC	01105	BNE	NOFX1
37C0 BE	5D8D	01106	LDX	\$5D8D
37C3 30	89 0120	01107	LEAX	288, X
37C7 6F	80	01108	NOFX2	CLR , X+
37C9 8C	1A00	01109	CMPX	#\$1A00
37CC 26	F9	01110	BNE	NOFX2
37CE CC	0040	01111	LDD	#\$40
37D1 FD	5CF2	01112	STD	\$5CF2
37D4 FD	5D03	01113	STD	\$5D03
37D7 C6	30	01114	LDB	#\$30
37D9 F7	4BA3	01115	STB	LOOPER
37DC BD	5CC8	01116	NOFX3	JSR \$5CC8

→ Make a white bar come down and "wipe clean" screen from graphics, making sound all the way.

→ No effects. Just delay, clear screen and beep. There ya have it.

37DF	7A	4BA3	01117	DEC	COOPER
37E2	26	F8	01118	BNE	NOFX3
37E4	16	FF7D	01119	LBRA	OUTEX
37E7	7D	4B5A	01120	BEEPIT	BEEPER
37EA	27	27	01121	BEQ	NOBEEP
37EC	7A	4B5A	01122	DEC	BEEPER
37EF	27	6A	01123	BEQ	INCGUY
37F1	B6	4B5A	01124	LDA	BEEPER
37F4	84	04	01125	ANDA	#4
37F6	27	1B	01126	BEQ	NOBEEP
37F8	86	0C	01127	LDA	#\$0C
37FA	B7	5CF3	01128	STA	\$5CF3
37FD	7F	5CF2	01129	CLR	\$5CF2
3800	B7	5D04	01130	STA	\$5D04
3803	7F	5D03	01131	CLR	\$5D03
3806	C6	14	01132	LDB	#\$14
3808	F7	4BA2	01133	STB	CNTLIN
380B	BD	5CC8	01134	MKBEEP	JSR
380E	7A	4BA2	01135	DEC	CNTLIN
3811	26	F8	01136	BNE	MKBEEP
3813	7D	4B58	01137	NOBEEP	TST
3816	27	3F	01138	BEQ	NOBEP2
3818	F6	4B59	01139	LDB	ALARM1
381B	5C		01140	INC8	
381C	C4	01	01141	ANDB	#1
381E	F7	4B59	01142	STB	ALARM1
3821	5D		01143	TSTB	
3822	26	36	01144	BNE	NOBEP1
3824	86	58	01145	LDA	#\$58
3826	B7	5CE6	01146	STA	\$5CE6
3829	C6	04	01147	LDB	#4
382B	E7	E2	01148	ALLOOP	STB
382D	CC	0011	01149	LDD	#\$11
3830	FD	5CF2	01150	STD	\$5CF2
3833	FD	5D03	01151	STD	\$5D03
3836	BD	5CC8	01152	JSR	\$5CC8
3839	BD	5CC8	01153	JSR	\$5CC8
383C	BD	5CC8	01154	JSR	\$5CC8
383F	CC	0013	01155	LDD	#\$13
3842	FD	5CF2	01156	STD	\$5CF2
3845	FD	5D03	01157	STD	\$5D03
3848	BD	5CC8	01158	JSR	\$5CC8
384B	E6	E0	01159	LDB	,S+
384D	5A		01160	DEC8	
384E	26	DB	01161	BNE	ALLOOP
3850	86	C0	01162	LDA	#\$C0
3852	B7	5CE6	01163	STA	\$5CE6
3855	20	03	01164	BRA	NOBEP1
3857	7F	4B59	01165	NOBEP2	CLR
385A	39		01166	NOBEP1	RTS
385B	4F		01167	INCGUY	CLRA
385C	B6	4B9F	01168	LDA	PLYNO
385F	48		01169	LSLA	
3860	8E	4C2A	01170	LDX	#PLYNOT
3863	AE	86	01171	LDX	A,X
3865	BF	4B8D	01172	STX	YSTOR
3868	30	08	01173	LEAX	B,X
386A	A6	84	01174	LDA	,X
386C	4C		01175	INCA	
386D	B1	0A	01176	CMPA	#\$0A
386F	25	04	01177	BCS	IT
3871	80	0A	01178	SUBA	#\$0A
3873	6C	1F	01179	INC	-1,X
3875	A7	84	01180	IT	.X
3877	108E	4C94	01181	STA	#SCRTBL
3878	6D	25	01182	LDY	
				TST	S,Y

(19)

→ If player has earned an extra ship  
keep a few times.

→ Another alarm (for being too close to a  
psychops)

→ Increment # of ships player has,  
put score on screen

387D 26	1D	01183	BNE	SCTST2
387F BE	4B8D	01184	LDX	YSTOR
3882 AF	23	01185	STX	3, Y
3884 86	01	01186	LDA	#1
3886 A7	21	01187	STA	1, Y
3888 A7	25	01188	STA	5, Y
388A 86	FF	01189	LDA	#\$FF
388C A7	26	01190	STA	6, Y
388E 86	09	01191	LDA	#9
3890 A7	22	01192	STA	2, Y
3892 B6	4B9F	01193	LDA	PLYNO
3895 C6	5B	01194	LDB	#91
3897 3D		01195	MUL	
3898 5C		01196	INC B	
3899 E7	A4	01197	STB	, Y
389B 39		01198	RTS	
389C 31	27	01199	SCTST2	LEAY 7, Y
389E 20	DB	01200	BRA	SCTST1
38A0 7D	4B4B	01201	BPOINT	TST BROUND
38A3 1026	014B	01202	LBNE	BEND11
38A7 8E	10AA	01203	LDX	#\$10AA
38AA CE	5920	01204	LDU	#\$5920
38AD C6	07	01205	LDB	#7
38AF F7	4BA3	01206	STB	LOOPER
38B2 C6	12	01207	BNLPI	LDB #18
38B4 F7	4B9C	01208	STB	CNLIN1
38B7 A6	C0	01209	BNLPI2	LDA , U+
38B9 A7	80	01210	STA	, X+
38BB 7A	4B9C	01211	DEC	CNLIN1
38BE 26	F7	01212	BNE	BNLPI2
38C0 30	0E	01213	LEAX	i4, X
38C2 7A	4BA3	01214	DEC	LOOPER
38C5 26	EB	01215	BNE	BNLPI1
38C7 8E	4C18	01216	LDX	#BONBUF
38CA 6F	80	01217	CLR	, X+
38CC 6F	80	01218	CLR	, X+
38CE 6F	80	01219	CLR	, X+
38D0 6F	80	01220	CLR	, X+
38D2 6F	80	01221	CLR	, X+
38D4 6F	84	01222	CLR	, X
38D6 86	FF	01223	LDA	#\$FF
38D8 B7	4B5F	01224	STA	BARCOL
38DB 7C	4B61	01225	INC	<u>BONAMT</u>
38DE 7A	4B61	01226	BONSIP	DEC BONAMT
38E1 1027	0095	01227	LBEQ	NOMORE
38E5 BD	3321	01228	JSR	TMLNPT
38E8 C6	06	01229	LDB	#6
38EA F7	4B88	01230	STB	NONUM
38ED 8E	4C18	01231	LDX	#BONBUF
38F0 30	05	01232	LEAX	5, X
38F2 5A		01233	DEC B	
38F3 CE	4B82	01234	LDU	#LEV BON
38F6 33	C5	01235	LEAU	B, U
38F8 A6	84	01236	BIG12	LDA , X
38FA AB	C4	01237	ADD A	, U
38FC 81	0A	01238	CMP A	#\$0A
38FE 24	0D	01239	BCC	BIGGR1
3900 A7	84	01240	BIG11	STA , X
3902 30	1F	01241	LEAX	-1, X
3904 33	5F	01242	LEAU	-1, U
3906 7A	4B88	01243	DEC	NONUM
3909 26	ED	01244	BNE	BIG12
390B 20	06	01245	BRA	NOMOR1
390D 80	0A	01246	BIGGR1	SUB A
390F 6C	1F	01247	INC	#\$0A
3911 20	ED	01248	BRA	BIG11

→ Put "Bonus Points" message on screen,  
prepare for a decrement loop.

3913	4F		01249	NUM01	CLRA	
3914	8E	4C18	01250		LDX	#BONBUF
3917	6D	80	01251	NOM0R3	TST	, X+
3919	26	03	01252		BNE	NOM0R2
391B	4C		01253		INCA	
391C	20	F9	01254		BRA	NOM0R3
391E	40		01255	NOM0R2	NEGA	
391F	8B	06	01256		ADDA	#6
3921	B7	4B89	01257		STA	DIGITS
3924	108E	4C94	01258		LDY	#SCRTBL
3928	86	01	01259		LDA	#1
392A	A7	25	01260		STA	5, Y
392C	86	FF	01261		LDA	#\$FF
392E	A7	26	01262		STA	6, Y
3930	86	17	01263		LDA	#23
3932	A7	21	01264		STA	1, Y
3934	B6	4B89	01265		LDA	DIGITS
3937	A7	22	01266		STA	2, Y
3939	80	06	01267		SUBA	#6
393B	40		01268		NEGA	
393C	34	40	01269		PSHS	U
393E	CE	4C18	01270		LDU	#BONBUF
3941	33	C6	01271		LEAU	A, U
3943	EF	23	01272		STU	3, Y
3945	35	40	01273		PULS	U
3947	C6	04	01274		LDB	#4
3949	3D		01275		MUL	
394A	CB	0E	01276		ADDB	#14
394C	E7	A4	01277		STB	, Y
394E	BD	3D57	01278		JSR	NUMPUT
3951	B6	4B61	01279		LDA	BONAMT
3954	40		01280		NEGA	
3955	8B	2C	01281		ADDA	#\$2C
3957	1F	89	01282		TFR	A, B
3959	4F		01283		CLRA	
395A	FD	5CF2	01284		STD	\$5CF2
395D	FD	5D03	01285		STD	\$5D03
3960	C6	11	01286		LDB	#\$11
3962	F7	4BA0	01287		STB	LINCNT
3965	BD	5CC8	01288	BSNDLP	JSR	\$5CC8
3968	BD	5CC8	01289		JSR	\$5CC8
396B	8E	0050	01290		LDX	#\$50
396E	30	1F	01291	BSDLP1	LEAX	-1, X
3970	26	FC	01292		BNE	BSDLP1
3972	7A	4BA0	01293		DEC	LINCNT
3975	26	EE	01294		BNE	BSNDLP
3977	16	FF64	01295		LBRA	BONSLP
397A	BD	3321	01296	NOMORE	JSR	TMLNPT
397D	CE	4C18	01297		LDU	#BONBUF
3980	BD	4607	01298		JSR	ADDPNT
3983	BD	3D57	01299		JSR	NUMPUT
3986	8E	D000	01300		LDX	#\$D000
3989	30	1F	01301	NOMOLP	LEAX	-1, X
398B	26	FC	01302		BNE	NOMOLP
398D	7C	4B61	01303	BONUS1	INC	BONAMT
3990	B6	4B61	01304		LDA	BONAMT
3993	81	28	01305		CMPA	#40
3995	27	3E	01306		BEQ	MORENO
3997	BD	3321	01307		JSR	TMLNPT
399A	F6	4B61	01308		LDB	BONAMT
399D	54		01309		LSRB	
399E	50		01310		NEGB	
399F	CB	50	01311		ADDB	#\$50
39A1	4F		01312		CLRA	
39A2	FD	5CF2	01313		STD	\$5CF2
39A5	FD	5D03	01314		STD	\$5D03

→ Decrement time steadily, making sound, and creating an accumulating bonus score in a buffer, and on the screen. Also show line getting shorter steadily.

→ Add bonus score to player's score, put it on screen, w.a.t.

(22)

→ Quickly increment time, making sound

39A6 CG	04	01315	LDB	#4
39AA F7	4BA0	01316	STB	LINCNT
39AD BD	5CC8	01317 BSNLP1	JSR	\$5CC8
39B0 FC	5CF2	01318	LDD	\$5CF2
39B3 FD	4B8D	01319	STD	YSTOR
39B6 CC	0028	01320	LDD	#\$28
39B9 FD	5CF2	01321	STD	\$5CF2
39BC FD	5D03	01322	STD	\$5D03
39BF BD	5CC8	01323	JSR	\$5CC8
39C2 FC	4B8D	01324	LDD	YSTOR
39C5 FD	5CF2	01325	STD	\$5CF2
39C8 FD	5D03	01326	STD	\$5D03
39CB BD	5CC8	01327	JSR	\$5CC8
39CE 7A	4BA0	01328	DEC	LINCNT
39D1 26	DA	01329	BNE	BSNLP1
39D3 20	B8	01330	BRA	<u>BONUS1</u>
39D5 BD	3321	01331 MORENO	JSR	TMLNPT
39D8 8E	8000	01332	LDX	#\$8000
39DB 30	1F	01333 MORN01	LEAX	-1, X
39DD 26	FC	01334	BNE	MORN01
39DF 8E	3000	01335	LDX	#\$3000
39E2 30	1F	01336 NOMLP1	LEAX	-1, X
39E4 26	FC	01337	BNE	NOMLP1
39E6 8E	10A0	01338	LDX	#\$10A0
39E9 6F	80	01339 BPNLP3	CLR	, X+
39EB 8C	1180	01340	CMPX	#\$1180
39EE 25	F9	01341	BLO	BPNLP3
39F0 20	45	01342	BRA	<u>BEND13</u>
39F2 7F	4B4B	01343 BEND11	CLR	BROUND
39F5 7F	4B67	01344	CLR	NOWGUY
39F8 8E	1940	01345	LDX	#\$1940
39FB 6F	80	01346 CLRBOT	CLR	, X+
39FD 8C	1A00	01347	CMPX	#\$1A00
3A00 26	F9	01348	BNE	CLRBOT
3A02 BD	45EB	01349	JSR	ON
3A05 BD	48BF	01350	JSR	PUTSTR
3A08 8E	0000	01351	LDX	#0
3A0B BD	4809	01352	JSR	DELAY3
3A0E BD	5206	01353	JSR	\$5206
3A11 34	40	01354	PSHS	U
3A13 CE	4C12	01355	LDU	#P500
3A16 BD	4607	01356	JSR	ADDPT
3A19 35	40	01357	PULS	U
3A1B BD	4802	01358	JSR	DELAY1
3A1E BD	4802	01359	JSR	DELAY1
3A21 BD	480E	01360	JSR	CLS
3A24 8E	0000	01361	LDX	#0
3A27 BD	4809	01362	JSR	DELAY3
3A2A B6	4B4C	01363 BRONUP	LDA	<u>BROND1</u>
3A2D 4C		01364	INCA	
3A2E 81	04	01365	CMPA	#4
3A30 26	02	01366	BNE	<u>BEND12</u>
3A32 86	01	01367	LDA	#1
3A34 B7	4B4C	01368 BEND12	STA	<u>BROND1</u>
3A37 B6	4B67	01369 BEND13	LDA	NOWGUY
3A3A 4C		01370	INCA	
3A3B 81	07	01371	CMPA	#7
3A3D 25	08	01372	BCS	NXTLV1
3A3F B6	4B4C	01373	LDA	<u>BROND1</u>
3A42 B7	4B4B	01374	STA	BROUND
3A45 86	01	01375	LDA	#1
3A47 B7	4B67	01376 NXTLV1	STA	NOWGUY
3A4A 7E	4AEC	01377	JMP	<u>BONRND</u>
3A4D B6	4B97	01378 UPDSHT	LDA	BUTPRS
3A50 4D		01379	TSTA	
3A51 26	03	01380	BNE	UPD416

→ Delay, clear off Bonus Points message, go to BEND13

→ Clear cross-hatches, put ship, put stars, delay, print "500 Extra Bonus", add 500 points, delay, clear Bonus message, delay again, increment bonus round no. (applies only to bonus rounds)

→ Go for next wave of Nesties (or to Bonus Round)

3A53	7F	4B98	01381	CLR	BUTPR1
3A56	B6	4B90	01382	UPD416	LDA SHOT1F
3A59	BA	4B91	01383	ORA	SHOT2F
3A5C	1027	0094	01384	LBEQ	UPDDOUT
3A60	7F	5DBD	01385	CLR	\$5DBD
3A63	B6	4B92	01386	LDA	SHOT1X
3A66	B7	5DBE	01387	STA	\$5DBE
3A69	B6	4B94	01388	LDA	SHOTY
3A6C	B7	5DBF	01389	STA	\$5DBF
3A6F	7D	4B90	01390	TST	SHOT1F
3A72	27	0C	01391	BEQ	SHT1FN
3A74	BD	5D8F	01392	JSR	\$5D8F
3A77	7C	5DBF	01393	INC	\$5DBF
3A7A	BD	5D8F	01394	JSR	\$5D8F
3A7D	7A	5DBF	01395	DEC	\$5DBF
3A80	B6	4B93	01396	SHT1FN	LDA SHOT2X
3A83	B7	5DBE	01397	STA	\$5DBE
3A86	7D	4B91	01398	TST	SHOT2F
3A89	27	0C	01399	BEQ	SHT2FN
3A8B	BD	5D8F	01400	JSR	\$5D8F
3A8E	7C	5DBF	01401	INC	\$5DBF
3A91	BD	5D8F	01402	JSR	\$5D8F
3A94	7A	5DBF	01403	DEC	\$5DBF
3A97	B6	4B94	01404	SHT2FN	LDA SHOTY
3A9A	80	03	01405	SUBA	#3
3A9C	81	06	01406	CMPA	#6
3A9E	1027	00E0	01407	LBEQ	STPSHT
3AA2	B7	4B94	01408	STA	SHOTY
3AA5	B7	5DBF	01409	STA	\$5DBF
3AA8	B6	FF	01410	LDA	#\$FF
3AAA	B7	5DBD	01411	STA	\$5DBD
3AAD	B6	4B92	01412	LDA	SHOT1X
3AB0	B7	5DBE	01413	STA	\$5DBE
3AB3	7D	4B90	01414	TST	SHOT1F
3AB6	27	0C	01415	BEQ	SHT1FO
3ABB	BD	5D8F	01416	JSR	\$5D8F
3ABB	7C	5DBF	01417	INC	\$5DBF
3ABE	BD	5D8F	01418	JSR	\$5D8F
3AC1	7A	5DBF	01419	DEC	\$5DBF
3AC4	B6	4B93	01420	SHT1FO	LDA SHOT2X
3AC7	B7	5DBE	01421	STA	\$5DBE
3ACA	7D	4B91	01422	TST	SHOT2F
3ACD	27	0C	01423	BEQ	SHT2FO
3ACF	BD	5D8F	01424	JSR	\$5D8F
3AD2	7C	5DBF	01425	INC	\$5DBF
3AD5	BD	5D8F	01426	JSR	\$5D8F
3AD8	7A	5DBF	01427	DEC	\$5DBF
3ADB	B6	FE	01428	SHT2FO	LDA #\$FE
3ADD	B7	FF02	01429	STA	\$FF02
3AE0	B6	FF00	01430	LDA	\$FF00
3AE3	85	04	01431	BITA	#4
		3AE4	01432	JOYNS	EQU .-1
3AE5	26	0C	01433		BNE STPT11
3AE7	B6	FE	01434	POS1	LDA #\$FE
3AE9	B7	FF02	01435	STA	\$FF02
3AEC	B6	FF00	01436	LDA	\$FF00
3AEF	84	40	01437	ANDA	#\$40
3AF1	26	F4	01438	BNE	POS1
3AF3	39		01439	STPT11	RTS
3AF4	B6	FD	01440	UPDDOUT	LDA #\$FD
3AF6	B7	FF02	01441	STA	\$FF02
3AF9	B6	FF00	01442	LDA	\$FF00
3AFC	84	7F	01443	ANDA	#\$7F
3AFE	B1	3F	01444	CMPA	#\$3F
3B00	26	11	01445	BNE	STOPIT
3B02	B6	FB	01446	LDA	#\$FB

→ Update shots on screen (reset old ones, set new ones).

→ Check for pause, and un-pause.

→ Check for game abort.

3B04	B7	FF02	01447	STA	\$FF02	
3B07	B6	FF00	01448	LDA	\$FF00	
3B0A	84	7F	01449	ANDA	#\$7F	
3B0C	81	3F	01450	CMPA	#\$3F	
3B0E	26	03	01451	BNE	STOPIT	
3B10	7E	2E37	01452	JMP	TITLP2	
3B13	86	FE	01453	STOPIT	LDA	#\$FE
3B15	B7	FF02	01454	STA	\$FF02	
3B18	B6	FF00	01455	LDA	\$FF00	
3B1B	85	04	01456	BITA	#4	
		3B1C	01457	JOYN4	EQU	.-1
3B1D	26	0C	01458	BNE	STPIT1	
3B1F	86	FE	01459	PAUSE	LDA	#\$FE
3B21	B7	FF02	01460	STA	\$FF02	
3B24	B6	FF00	01461	LDA	\$FF00	
3B27	84	40	01462	ANDA	#\$40	
3B29	26	F4	01463	BNE	PAUSE	
3B2B	B6	4B97	01464	STPIT1	LDA	BUTPRS
3B2E	F6	4B98	01465		LDB	BUTPR1
3B31	5D		01466	TSTB		
3B32	27	04	01467	BEQ	SHTABL	
3B34	B7	4B98	01468	STA	BUTPR1	
3B37	39		01469	RTS		
3B38	4D		01470	SHTABL	TSTA	
3B39	27	A0	01471	BEQ	SHT2FO	
3B3B	B7	4B98	01472	STA	BUTPR1	
3B3E	86	01	01473	LDA	#1	
3B40	B7	4B90	01474	STA	SHOT1F	
3B43	B7	4B91	01475	STA	SHOT2F	
3B46	B6	5AA5	01476	LDA	SHPPOS	
3B49	BB	02	01477	ADDA	#2	
3B4B	B7	4B92	01478	STA	SHOT1X	
3B4E	BB	08	01479	ADDA	#8	
3B50	B7	4B93	01480	STA	SHOT2X	
3B53	86	5A	01481	LDA	#\$5A	
3B55	B7	4B94	01482	STA	SHOTY	
3B58	8E	0030	01483	LDX	#\$30	
3B5B	BF	5CF2	01484	STX	\$5CF2	
3B5E	BF	5D03	01485	STX	\$5D03	
3B61	C6	12	01486	LDB	#18	
3B63	F7	4BA0	01487	STB	LINCNT	
3B66	BE	5CF2	01488	LOOPSN	LDX	\$5CF2
3B69	30	1E	01489	LEAX	-2, X	
3B6B	BF	5CF2	01490	STX	\$5CF2	
3B6E	BF	5D03	01491	STX	\$5D03	
3B71	BD	5CC8	01492	JSR	\$5CC8	
3B74	BD	5CC8	01493	JSR	\$5CC8	
3B77	7A	4BA0	01494	DEC	LINCNT	
3B7A	26	EA	01495	BNE	LOOPSN	
3B7C	B6	4B94	01496	LDA	SHOTY	
3B7F	16	FF15	01497	LBRA	SHT2FN	
3B82	7F	4B90	01498	STPSHT	CLR	SHOT1F
3B85	7F	4B91	01499	CLR	SHOT2F	
3B88	16	FF69	01500	LBRA	UPDOUT	
3B8B	108E	4C40	01501	DOSHOT	LDY	#SHTTBL
3B8F	C6	08	01502	LDB	#8	
3B91	F7	4B9C	01503	STB	CNLIN1	
3B94	7F	4B64	01504	CLR	SHTTHR	
3B97	10BF	4B5C	01505	SHTLP	STY	STORY
3B9B	6D	22	01506	TST	2, Y	
3B9D	27	13	01507	BEQ	NSHT	
3B9F	7C	4B64	01508	INC	SHTTHR	
3BA2	A6	23	01509	LDA	3, Y	
3BA4	81	01	01510	CMPA	#1	
3BA6	1025	009C	01511	LBCS	PELLET	
3BAA	1027	00E8	01512	LBEQ	STRING	

→ Check for pause, unpause.

→ Check if it's OK for the player to shoot

→ Set up 2 shots, make Whoop sound.

→ Get rid of shots

→ Check which kind of Nastie shot is due.

3B4E	1024	000C	01513	LBCC	CYCZAP
3BB2	10BE	4B5C	01514	NSHT	LDY
3BB6	31	25	01515	LEAY	S, Y
3BB8	7A	4B9C	01516	DEC	CNLIN1
3BBB	26	DA	01517	BNE	SHTLP
3BBD	39		01518	RTS	
3B8E	A6	A4	01519	CYCZAP	LDA , Y
3BC0	E6	21	01520	LDB	1, Y
3BC2	B7	5BCB	01521	STA	\$5BCB
3BC5	7F	5BCC	01522	CLR	\$5BCC
3BC8	F7	5BCD	01523	STB	\$5BCD
3BCB	7F	5BCE	01524	CLR	\$5BCE
3BCE	B6	5AA5	01525	LDA	SHPPOS
3BD1	8B	06	01526	ADDA	#6
3BD3	B7	5BC9	01527	STA	\$5BC9
3BD6	7F	5BCA	01528	CLR	\$5BCA
3BD9	86	FF	01529	LDA	#\$FF
3BDB	B7	5BD5	01530	STA	\$5BD5
3BDE	86	58	01531	LDA	#\$58
3BE0	B7	5BC7	01532	STA	\$5BC7
3BE3	7F	5BC8	01533	CLR	\$5BC8
3BE6	34	30	01534	PSHS	Y, X
3BE8	BE	5BC9	01535	LDX	\$5BC9
3BEB	10BE	5BCB	01536	LDY	\$5BCB
3BEF	BF	4B6A	01537	STX	STXEND
3BF2	10BF	4B6C	01538	STY	STXST
3BF6	BE	5BC7	01539	LDX	\$5BC7
3BF9	BF	4B6E	01540	STX	STYEND
3BFC	BE	5BCD	01541	LDX	\$5BCD
3BFF	BF	4B70	01542	STX	STYST
3C02	BD	5AA6	01543	JSR	\$5AA6
3C05	BD	4755	01544	JSR	REVERS
3C08	8E	000F	01545	LDX	#15
3C08	30	1F	01546	DELOOP	LEAX -1, X
3C0D	26	FC	01547	BNE	DELOOP
3C0F	BD	4755	01548	JSR	REVERS
3C12	7F	5BD5	01549	CLR	\$5BD5
3C15	BE	4B70	01550	LDX	STYST
3C18	BF	5BCD	01551	STX	\$5BCD
3C1B	BE	4B6A	01552	LDX	STXEND
3C1E	10BE	4B6C	01553	LDY	STXST
3C22	BF	5BC9	01554	STX	\$5BC9
3C25	10BF	5BCB	01555	STY	\$5BCB
3C29	BE	4B6E	01556	LDX	STYEND
3C2C	BF	5BC7	01557	STX	\$5BC7
3C2F	BD	5AA6	01558	JSR	\$5AA6
3C32	35	30	01559	PULS	X, Y
3C34	B6	4B66	01560	LDA	SHPZAP
3C37	4C		01561	INCA	
3C38	B7	4B66	01562	STA	SHPZAP
3C3B	81	05	01563	CMPA	#5
3C3D	1024	F7D2	01564	LBCC	BLOWUP
3C41	6F	22	01565	PDEADP	CLR 2, Y
3C43	16	FF6C	01566	LBRA	NSHT
3C46	B6	5AA4	01567	PELLET	LDA LEVEL
3C49	81	08	01568	CMPA	#\$8
3C4B	24	08	01569	BCC	PELET1
3C4D	7D	4B9B	01570	TST	CYCLE
3C50	26	03	01571	BNE	PELET1
3C52	16	FF5D	01572	LBRA	NSHT
3C55	A6	A4	01573	PELET1	LDA , Y
3C57	B7	5DBE	01574	STA	\$5DBE
3C5A	A6	21	01575	LDA	1, Y
3C5C	B7	5DBF	01576	STA	\$5DBF
3C5F	7F	5DBD	01577	CLR	\$5DBD
3C62	BD	5D8F	01578	JSR	\$5D8F

→ Set up to zap ship, reverse, eradicate  
lure, if it's been 5 zaps, destroy ship

→ If over a certain level, shots double speed.

4A54	1027	E6E8	03229	LBEQ	CHEKD1
4A58	7F	4B60	03230	CLR	BONCNT
4A5B	B6	4B4B	03231	LDA	BROUND
4A5E	84	01	03232	ANDA	#1
4A60	88	01	03233	EORA	#1
4A62	CE	4BA6	03234	LDU	#XPOS
4A65	5F		03235	CLRB	
4A66	48		03236	LSLA	
4A67	C6	08	03237	LDB	#8
4A69	F7	4B62	03238	STB	CNTDED
4A6C	8E	5356	03239	LDX	##\$5356
4A6F	AE	86	03240	LDX	A, X
4A71	F7	4B9C	03241	STB	CNLIN1
4A74	EC	81	03242	TBLOP	LDD , X++
4A76	ED	C4	03243	STD	, U
4A78	EC	81	03244	LDD	, X++
4A7A	ED	46	03245	STD	6, U
4A7C	CC	0306	03246	LDD	##\$306
4A7F	ED	42	03247	STD	2, U
4A81	4F		03248	CLRA	
4A82	5F		03249	CLRB	
4A83	ED	44	03250	STD	4, U
4A85	CC	5DF1	03251	LDD	##\$5DF1
4A88	ED	48	03252	STD	8, U
4A8A	86	01	03253	LDA	#1
4A8C	A7	4A	03254	STA	10, U
4A8E	33	4B	03255	LEAU	11, U
4A90	7A	4B9C	03256	DEC	CNLIN1
4A93	26	DF	03257	BNE	TBLOP
4A95	86	0C	03258	LDA	##\$0C
4A97	B7	4B7F	03259	STA	BONBYT
4A9A	B6	4B4B	03260	LDA	BROUND
4A9D	81	01	03261	CMPA	#1
4A9F	26	05	03262	BNE	TBLOP1
4AA1	86	10	03263	LDA	##\$10
4AA3	B7	4B7F	03264	STA	BONBYT
4AA6	16	E6F9	03265	TBLOP1	LBRA CHKD
4AA9	34	70	03266	PUTX	PSHS U, Y, X
4AAB	CE	4B2B	03267	LDU	#TABX
4AAE	6D	C0	03268	TABX1	TST , U+
4AB0	27	2C	03269	BEQ	OUT
4AB2	E6	5F	03270	LDB	-1, U
4AB4	4F		03271	CLRA	
4AB5	1F	98	03272	TFR	B, A
4AB7	84	03	03273	ANDA	#3
4AB9	48		03274	LSLA	
4ABA	108E	4B33	03275	LDY	#TX1
4ABE	10AE	A6	03276	LDY	A, Y
4AC1	54		03277	LSRB	
4AC2	54		03278	LSRB	
4AC3	8E	1940	03279	LDX	##\$1940
4AC6	3A		03280	ABX	
4AC7	BD	4AE0	03281	JSR	XPUT
4ACA	BD	4AE0	03282	JSR	XPUT
4ACD	BD	4AE0	03283	JSR	XPUT
4AD0	30	89 FF60	03284	LEAX	-160, X
4AD4	31	22	03285	LEAY	2, Y
4AD6	BD	4AE0	03286	JSR	XPUT
4AD9	BD	4AE0	03287	JSR	XPUT
4ADC	20	D0	03288	BRA	TABX1
4ADE	35	F0	03289	OUT	PULS X, Y, U, PC
4AE0	EC	A4	03290	XPUT	LDD , Y
4AE2	AA	84	03291	ORA	, X
4AE4	EA	01	03292	ORB	1, X
4AE6	ED	84	03293	STD	, Y
4AE8	30	68 40	03294	LEAX	\$40, X

→ Check if it's time to have a Bonus Round.  
If so, set up special tables of bonus round  
Nasties, and special difficulty level tables  
for the Bonus Round.

→ If, during bonus round, an "End Eyes" has reached bottom, it becomes a red crosshatch roadblock. This routine prints them.

→ Put one line of crosshatch on screen.

4AE8 39		03295	RTS	
4AEC ?D	4B4B	03296	BONRND	TST
4AEF 27	27	03297	BEQ	BONRN1
4AF1 8E	0000	03298	LDX	#0
4AF4 BD	4B09	03299	JSR	DELAY3
4AF7 B6	4B4B	03300	LDA	BROUND
4AFA B7	52C9	03301	STA	\$52C9
4AFD BD	517E	03302	JSR	\$517E
4B00 BD	4B02	03303	JSR	DELAY1
4B03 BD	4B0E	03304	JSR	CLS
4B06 8E	0000	03305	LDX	#0
4B09 BD	4B09	03306	JSR	DELAY3
4B0C B6	4B4B	03307	LDA	BROUND
4B0F 84	02	03308	ANDA	#2
4B11 27	05	03309	BEQ	BONRN1
4B13 86	07	03310	LDA	#7
4B15 B7	4B67	03311	STA	NOWGUY
4B18 7E	3107	03312	BONRN1	JMP SHEET
4B1E 0102		03313	BUTTBL	FDB \$0102
4B1D FF		03314	CLTBL2	FCB \$FF
4B1E 55		03315	FCB	\$55
4B1F 80		03316	TBSTVL	FCB \$80
4B20 20		03317	FCB	\$20
4B21 08		03318	FCB	\$8
4B22 02		03319	FCB	\$2
4B23 04		03320	SPXCNT	FCB 4
4B24 00		03321	HTPOD	FCB 0
4B25 0000		03322	BBBUFF	FDB 0
4B27 0200		03323		FDB \$200
4B29 0000		03324		FDB 0
4B2B 0000		03325	TABX	FDB 0
4B2D 0000		03326		FDB 0
4B2F 0000		03327		FDB 0
4B31 0000		03328		FDB 0
4B33 4B3B		03329	TX1	FDB X1
4B35 4B3F		03330		FDB X2
4B37 4B43		03331		FDB X3
4B39 4B47		03332		FDB X4
4B3B 8880		03333	X1	FDB \$8880
4B3D 2200		03334		FDB \$2200
4B3F 2220		03335	X2	FDB \$2220
4B41 0880		03336		FDB \$0880
4B43 0888		03337	X3	FDB \$0888
4B45 0220		03338		FDB \$0220
4B47 0222		03339	X4	FDB \$0222
4B49 0088		03340		FDB \$0088
4B4B 00		03341	BROUND	FCB 0
4B4C 00		03342	BROND1	FCB 0
4B4D 00		03343	BROND2	FCB 0
4B4E 00		03344	CYCLE1	FCB 0
4B4F 00		03345	STSN	FCB 0
4B50 00		03346	PRMUT1	FCB 0
4B51 00		03347	PERMUT	FCB 0
4B52 00		03348	PLAYER	FCB 0
4B53 0000		03349	SCRPOS	FDB 0
4B55 00		03350	INPLCE	FCB 0
4B56 0000		03351	INPLOC	FDB 0
4B58 00		03352	ALARM	FCB 0
4B59 00		03353	ALARM1	FCB 0
4B5A 00		03354	BEEPER	FCB 0
4B5B 00		03355	BEEPRT1	FCB 0
4B5C 0000		03356	STORY	FDB 0
4B5E 00		03357	TMCRTC	FCB 0
4B5F 00		03358	BARCOL	FCB 0
4B60 00		03359	BONCNT	FCB 0
4B61 00		03360	BONAMT	FCB 0

→ Delay, Print "Bonus Round" message, delay, erase it, delay, set up for whether Evil Eyes or Birds will mainly appear on screen. Go for next wave

→ Various tables (mostly constants)

4B62	00	03361	CNTDED	FCB	0
4B63	20	03362	CNTER	FCB	\$20
4B64	00	03363	SHTTHR	FCB	0
4B65	00	03364	SCROFF	FCB	0
4B66	00	03365	SHPZAP	FCB	0
4B67	01	03366	NOWGUY	FCB	1
4B68	01	03367	NWGY1	FCB	1
	5AA4	03368	LEVEL	EQU	\$5AA4
4B69	00	03369	ERR	FCB	0
4B6A	0000	03370	STXEND	FDB	0
4B6C	0000	03371	STXST	FDB	0
4B6E	0000	03372	STYEND	FDB	0
4B70	0000	03373	STYST	FDB	0
4B72	00	03374	FLGPRB	FCB	0
4B73	00	03375	CRSPRB	FCB	0
4B74	00	03376	QUBPRB	FCB	0
4B75	00	03377	STMPRB	FCB	0
4B76	00	03378	ARMPRB	FCB	0
4B77	7F	03379	CYCPRB	FCB	\$7F
4B78	08	03380	FLGNO	FCB	8
4B79	05	03381	CRSNO	FCB	5
4B7A	03	03382	QUBNO	FCB	3
4B7B	03	03383	STMNO	FCB	3
4B7C	04	03384	STRNO	FCB	4
4B7D	0800	03385	LEVDEL	FDB	\$800
4B7F	1C	03386	BONBYT	FCB	\$1C
4B80	0000	03387	DELAY	FDB	0
4B82	0000	03388	LEVBN	FDB	0
4B84	0000	03389		FDB	0
4B86	0100	03390		FDB	\$100
4B88	00	03391	NONUM	FCB	0
4B89	00	03392	DIGITS	FCB	0
4B8A	00	03393	NOFNUM	FCB	0
4B8B	00	03394	SHFTBT	FCB	0
4B8C	00	03395	BTINUM	FCB	0
4B8D	0000	03396	YSTOR	FDB	0
4B8F	00	03397	SHCON	FCB	0
4B90	00	03398	SHOT1F	FCB	0
4B91	00	03399	SHOT2F	FCB	0
4B92	00	03400	SHOT1X	FCB	0
4B93	00	03401	SHOT2X	FCB	0
4B94	00	03402	SHOTY	FCB	0
4B95	00	03403	DIR	FCB	0
4B96	00	03404	JOYKEY	FCB	0
4B97	00	03405	BUTPRS	FCB	0
4B98	00	03406	BUTPR1	FCB	0
4B99	00	03407	CURNTX	FCB	0
	5AA5	03408	SHPPOS	EQU	\$5AA5
4B9A	00	03409	SHPOS1	FCB	\$0
4B9B	00	03410	CYCLE	FCB	0
4B9C	00	03411	CNLIN1	FCB	0
4B9D	00	03412	CNLIN	FCB	0
4B9E	00	03413	NOPLAY	FCB	0
4B9F	00	03414	PLYNO	FCB	0
	5D8D	03415	SCRST	EQU	\$5D8D
4BA0	00	03416	LINCNT	FCB	0
4BA1	00	03417	SRBYTE	FCB	0
4BA2	00	03418	CNTLIN	FCB	0
4BA3	00	03419	LOOPER	FCB	0
4BA4	00	03420	LOP1	FCB	0
4BA5	00	03421	LOP2	FCB	0
4BA6		03422	XPOS	RMB	108
4C12	0000	03423	P500	FDB	0
4C14	0005	03424		FDB	5
4C16	0000	03425		FDB	?
4C18	0000	03426	BONBUF	FDB	0

→ Various tables (mostly variables).

(54)

4C1A	0000	03427	FDB	0
4C1C	0000	03428	FDB	0
4C1E	0A0A	03429 EMPBUF	FDB	\$0A0A
4C20	0A0A	03430	FDB	\$0A0A
4C22	0A0A	03431	FDB	\$0A0A
4C24	0A0A	03432	FDB	\$0A0A
4C26	0A0A	03433	FDB	\$0A0A
4C28	0A0A	03434	FDB	\$0A0A
4C2A	4C2E	03435 PLYNOT	FDB	PLY1SC
4C2C	4C37	03436	FDB	PLY2SC
4C2E	0000	03437 PLY1SC	FDB	0
4C30	0000	03438	FDB	0
4C32	0000	03439	FDB	0
4C34	0A	03440	FCB	\$0A
4C35	0003	03441	FDB	3
4C37	0000	03442 PLY2SC	FDB	0
4C39	0000	03443	FDB	0
4C3B	0000	03444	FDB	0
4C3D	0A	03445	FCB	\$0A
4C3E	0003	03446	FDB	3
4C40		03447 SHTTBL	RMB	80
4C90	0000	03448 RNDNUM	FDB	0
4C92	0000	03449	FDB	0
4C94		03450 SCRTBL	RMB	80
4CE4		03451 SCRSTB	RMB	80
4D34	28	03452	FCC	/ (C) 1984 BY DAVE SHADOFF /
	4D4B	03453 LAST	EQU	.-1
	2D00	03454	END	ORIGIN

00000 TOTAL ERRORS

Program Listing 2 - Xplode (ship explosion)

(55)

4E00		00001	ORG	\$4E00	
4E00 BD	4EC4	00002 Xplode	JSR	REVERS	
4E03 BD	5D0B	00003	JSR	\$5D0B	Flash, by reversing screen, making noise,
4E06 BD	5D0B	00004	JSR	\$5D0B	→ and re-reversing screen to normalize.
4E09 BD	5D0B	00005	JSR	\$5D0B	
4E0C BD	5D0B	00006	JSR	\$5D0B	
4E0F BD	4EC4	00007	JSR	REVERS	
4E12 8E	4F45	00008	LDX	#PNTTBL	
4E15 108E	4EDF	00009	LDY	#COLTBL	set up for loop of 60 points to move
4E19 C6	3C	00010	LDB	#60	
4E1B F7	4EDD	00011	STB	PNTCNT	
4E1E C6	B8	00012 STPNT	LDB	#184	
4E20 B6	5AAS	00013	LDA	SHPPOS	
4E23 BB	07	00014	ADD A	#7	initial y-position is 184, x-position is centre of ship.
4E25 48		00015	LSLA	3, X	
4E26 E7	03	00016	STB	2, X	point is "on"
4E28 A7	02	00017	STA	, X	
4E2A A7	84	00018	STA	\$5D3F	
4E2C B6	5D3F	00019	LDA	#3	color
4E2F B4	03	00020	AND A	A, Y	
4E31 A6	A6	00021	LDA	1, X	
4E33 A7	01	00022	STA	\$5D21	get random values for x,y speeds of point
4E35 BD	5D21	00023	JSR	\$5D3F	
4E38 FC	5D3F	00024	LDD	#\$87	
4E3B 84	87	00025	AND B	#15	Mask values. MSBit is up/down flag
4E3D C4	0F	00026	ANDB	#12	
4E3F C1	0C	00027	CMPB	YVECOK	
4E41 25	02	00028	BCS	#8	Regulate y-value to an average
4E43 C0	08	00029	SUBB	4, X	
4E45 A7	04	00030 YVECOK	STA	#\$80	
4E47 CA	80	00031	ORB	5, X	y must go up
4E49 E7	05	00032	STB	\$5D40	
4E4B F6	5D40	00033	LDB		
4E4E 54		00034	LSRB		
4E4F 54		00035	LSRB		
4E50 54		00036	LSRB		
4E51 C4	03	00037	ANDB	#3	
4E53 E7	06	00038	STB	6, X	
4E55 30	07	00039	LEAX	7, X	
4E57 7A	4EDD	00040	DEC	PNTCNT	→ Go for next point.
4E5A 26	C2	00041	BNE	STPNT	
4E5C 8E	4F45	00042 CNTLP1	LDX	#PNTTBL	
4E5F 7F	4EDE	00043	CLR	CNTPNT	Get ready to move line points, or count dead ones.
4E62 C6	3C	00044	LDB	#60	
4E64 F7	4EDD	00045	STB	PNTCNT	
4E67 6D	84	00046 CNTL0P	TST	, X	
4E69 27	39	00047	BEQ	N THERE	→ It's dead.
4E6B 6D	06	00048	TST	6, X	
4E6D 27	04	00049	BEQ	NO DEC	→ It's ready to move.
4E6F 6A	06	00050	DEC	6, X	
4E71 20	3F	00051	BRA	THERE	Decrement wait counter (make it more ready to move)
4E73 7F	5DBD	00052 NODEC	CLR	\$5DBD	Reset old point off screen (black color).
4E76 EC	02	00053	LDD	2, X	
4E78 44		00054	LSRA		
4E79 54		00055	LSRB		
4E7A B7	5DBE	00056	STA	\$5DBE	
4E7D F7	5DBF	00057	STB	\$5DBF	Reset old pixel
4E80. BD	5DBF	00058	JSR	\$5DBF	
4E83 BD	4F23	00059	JSR	ADDX	
4E86 BD	4EE3	00060	JSR	ADDY	Make new value.

4E89	6D	84	00061	TST	, X	→ Did it go off screen?	
4EBB	27	17	00062	BNE	N THERE		
4EBD	EC	02	00063	LDI	2, X		
4EBF	44		00064	LSRA		Put (x,y) new values in set routines checks	
4E90	54		00065	LSRB			
4E91	B7	5DBE	00066	STA	\$5DBE		
4E94	F7	5DBF	00067	STB	\$5DBF		
4E97	A6	01	00068	LDA	1, X	→ Color	
4E99	B7	5DBD	00069	STA	\$5DBD		
4E9C	BD	5D8F	00070	JSR	\$5D8F	→ Set point	
4E9F	BD	5D0B	00071	JSR	\$5D0B		
4EA2	20	0E	00072	BRA	THERE	→ Make Noise	
4EA4	7C	4EDE	00073	N THERE	INC	CNTPNT	
4EA7	34	10	00074	PSHS	X	→ Count one more dead, delay.	
4EA9	8E	004B	00075	LDX	#75		
4EAC	30	1F	00076	DELOOP	LEAX	-1, X	
4EAE	26	FC	00077	BNE	DELOOP		
4EB0	35	10	00078	PULS	X		
4EB2	30	07	00079	THERE	LEAX	7, X	
4EB4	7A	4EDD	00080	DEC	PNTCNT	→ Go back for more	
4EB7	26	AE	00081	BNE	CNTLOP		
4EB9	B6	4EDE	00082	LDA	CNTPNT		
4EBC	81	3C	00083	CMPA	#60	→ Are we all finished?	
4EBE	26	9C	00084	BNE	CNTLP1		
4EC0	6E	9F 5AA1	00085	LAST	JMP	[\$5AA1]	→ Go back to game (listing 1).
4EC4	34	16	00086	REVERS	PSHS	X, B, A	
4EC6	BE	5D8D	00087	LDX	\$5D8D		
4EC9	EC	84	00088	RVRS1	LDI	, X	
4ECB	43		00089	COMA			
4ECC	53		00090	COMB		→ Complement every byte on the screen, delay	
4ECD	ED	81	00091	STD	, X++		
4ECF	8C	1A00	00092	CMPX	#\$1A00		
4ED2	25	F5	00093	BLO	RVRS1		
4ED4	8E	0500	00094	LDX	#\$500		
4ED7	30	1F	00095	LOPDEL	LEAX	-1, X	
4ED9	26	FC	00096	BNE	LOPDEL		
4EDB	35	96	00097	PULS	A, B, X, PC		
4EDD	00		00098	PNTCNT	FCB	0	
4EDE	00		00099	CNTPNT	FCB	0	
	5AAS		00100	SHPPOS	EQU	\$5AAS	
4EDF	AA	00101	COLTBL	FCB	\$AA		
4EE0	55	00102		FCB	\$55	→ Colors available - red is favoured (points colors)	
4EE1	AA	00103		FCB	\$AA		
4EE2	FF	00104		FCB	\$FF		
4EE3	A6	05	00105	ADDY	LDA	5, X	
4EE5	85	80	00106		BITA	#\$80	
4EE7	27	0E	00107		BEQ	ADYPOS	
4EE9	84	0F	00108		ANDA	#15	
4EEB	A7	E2	00109		STA	, -S	
4EED	A6	03	00110		LDA	3, X	
4EEF	A0	E0	00111		SUBA	, S+	
4EF1	81	12	00112		CMPA	#18	
4EF3	25	2B	00113		BCS	GONEY	
4EF5	20	08	00114		BRA	RNDMTY	
4EF7	84	0F	00115	ADYPOS	ANDA	#15	
4EF9	AB	03	00116		ADDA	3, X	
4EFB	81	C0	00117		CMPA	#192	
4EFD	24	21	00118		BCC	GONEY	
4EFF	A7	03	00119	RNDMTY	STA	3, X	
4F01	BD	5D21	00120		JSR	\$5D21	
4F04	B6	5D3F	00121		LDA	\$5D3F	
4F07	84	80	00122		ANDA	#\$80	
4F09	27	01	00123		BEQ	NEXT	
4F0B	39		00124		RTS		
4F0C	A6	05	00125	NEXT	LDA	, X	
4F0E	84	0F	00126		ANDA	#15	

4F10	26	02	00127	BNE	RDMTY1	
4F12	A7	05	00128	STA	5, X	
4F14	A6	05	00129	RDMTY1	LDA	5, X
4F16	85	80	00130	BITA	#\$80	
4F18	27	03	00131	BEQ	INCMTY	
4F1A	6A	05	00132	DEC	5, X	
4F1C	39		00133	RTS		
4F1D	6C	05	00134	INC	5, X	
4F1F	39		00135	RTS		
4F20	6F	84	00136	GONEY	CLR	, X
4F22	39		00137	RTS		
4F23	A6	04	00138	ADDX	LDA	4, X
4F25	85	80	00139	BITA	#\$80	
4F27	27	0E	00140	BEQ	ADXPOS	
4F29	84	07	00141	ANDA	#7	
4F2B	27	15	00142	BEQ	GONEX	
4F2D	A7	E2	00143	STA	, -S	
4F2F	A6	02	00144	LDA	2, X	
4F31	A0	E0	00145	SUBA	, S+	
4F33	25	0D	00146	BCS	GONEX	
4F35	20	08	00147	BRA	DONEX	
4F37	84	07	00148	ADXPOS	ANDA	#7
4F39	27	07	00149	BEQ	GONEX	
4F3B	AB	02	00150	ADDA	2, X	
4F3D	25	03	00151	BCS	GONEX	
4F3F	A7	02	00152	DONEX	STA	2, X
4F41	39		00153	RTS		
4F42	6F	84	00154	GONEX	CLR	, X
4F44	39		00155	RTS		
4F45			00156	PNTTBL	RMB	
5107		28	00157	FCC	450 / (C) 1984 BY DAVE SHADOFF/	
	511E		00158	LASTBT	EQU	-1
	4E00		00159	END	Xplode	

00000 TOTAL ERRORS

(57)

simulate gravity (acceleration) by changing velocity of particle downwards slightly.

It's dead

Check if negative x-value - if yes, subtract.

Add x-velocity to x-position

Point Table

It's dead.

517E		00001	ORG	\$517E	
517E 8E	2000	00002	BONUSR	LDX	#\$2000
5181 30	1F	00003	BONUS1	LEAX	-1,X
5183 26	FC	00004		BNE	BONUS1
5185 8E	5302	00005		LDX	#\$5302
5188 108E	10A8	00006		LDY	#\$10A8
518C BD	51EA	00007		JSR	PRNST
518F 8E	52CA	00008		LDX	#\$52CA
5192 108E	10B0	00009		LDY	#\$10B0
5196 BD	51EA	00010		JSR	PRNST
5199 12		00011		NOP	
519A 7E	51B9	00012		JMP	START
519D 8E	51E2	00013		LDX	#TBLBON
51A0 B6	52C9	00014		LDA	\$52C9
51A3 4A		00015		DECA	
51A4 5F		00016		CLRB	
51A5 48		00017		LSLA	
51A6 AE	86	00018		LDX	A,X
51A8 C6	07	00019		LDB	#7
51AA F7	52C8	00020		STB	\$52C8
51AD EC	81	00021	LOOP2	LDD	,X++
51AF ED	A4	00022		STD	,Y
51B1 31	A8 20	00023		LEAY	\$20,Y
51B4 7A	52C8	00024		DEC	\$52C8
51B7 26	F4	00025		BNE	LOOP2
	5CF2	00026	SONDX1	EQU	\$5CF2
	5CC8	00027	SOUNDX	EQU	\$5CC8
	5D03	00028	SONDX2	EQU	\$5D03
51B9 BD	51CA	00029	START	JSR	WHOP
51BC BD	51CA	00030		JSR	WHOP
51BF BD	51CA	00031		JSR	WHOP
51C2 BD	51CA	00032		JSR	WHOP
51C5 BD	51CA	00033		JSR	WHOP
51C8 39		00034		RTS	
51C9 12		00035		NOP	
51CA CC	0076	00036	WHOP	LDD	#\$76
51CD FD	5CF2	00037	WHOOP	STD	SONDX1
51D0 FD	5D03	00038		STD	SONDX2
51D3 BD	5CC8	00039		JSR	SOUNDX
51D6 RD	5CC8	00040		JSR	SOUNDX
51D9 FC	5CF2	00041		LDD	SONDX1
51DC 5A		00042		DEC B	
51DD 5A		00043		DEC B	
51DE 26	ED	00044		BNE	WHOOP
51E0 39		00045		RTS	
51E1 39		00046		RTS	
51E2	5900	00047	TBLBON	FDB	\$5900
51E4	5910	00048		FDB	\$5910
51E6	533A	00049		FDB	\$533A
51E8	5348	00050		FDB	\$5348
51EA C6	07	00051	PRNST	LDB	#7
51EC F7	52C8	00052		STB	\$52C8
51EF C6	04	00053	LOOP	LDB	#4
51F1 F7	526C	00054		STB	LINCNT
51F4 EC	81	00055	LOOP1	LDD	,X++
51F6 ED	A1	00056		STD	,Y++
51F8 7A	526C	00057		DEC	LINCNT
51FB 26	F7	00058		BNE	LOOP1
51FD 31	A8 18	00059		LEAY	\$18,Y
5200 7A	52C8	00060		DEC	\$52C8
5203 26	EA	00061		BNE	LOOP

Annotations:

- Delay: Points to the sequence of instructions from \$517E to \$519A.
- Put graphically-encoded "Bonus Round" message on screen: Points to the sequence of instructions from \$519D to \$51B9.
- go to start: Points to the JMP instruction at \$519A.
- Previously, but no longer, used routine. (prints round # after "Bonus Round"): Points to the sequence of instructions from \$51AD to \$51B7.
- Definitions: Points to the EQU definitions for WHOP, WHOOP, SONDX1, SONDX2, and SOUNDX.
- Make 5 "whop" sounds: Points to the sequence of JSR and RTS instructions from \$51B9 to \$51C9.
- Make quickly rising tone ("whop"): Points to the sequence of LDD, STD, and JSR instructions from \$51CD to \$51E1.
- No longer used (Table for numbers): Points to the FDB definitions for 5900, 5910, 533A, and 5348.
- Subroutine to print graphics letter by letter: Points to the sequence of LDB, STD, DEC, and BNE instructions from \$51F4 to \$51FB.

(59)

5205 39			00062	RTS		
5206 8E	2000		00063 BONRN1	LDX	#\$2000	
5209 30	1F		00064 LOOP10	LEAX	-1, X	→ Delay
520B 26	FC		00065	BNE	LOOP10	
520D 8E	526D		00066	LDX	#\$526D	
5210 108E	10A5		00067	LDY	#\$10A5	
5214 C6	07		00068	LDB	#7	
5216 F7	52C8		00069	STB	\$52C8	
5219 C6	06		00070 LOOP3	LDB	#6	
521B F7	526C		00071	STB	LINCNT	
521E EC	81		00072 LOOP4	LDD	, X++	→ Print "500 Extra" in graphic letter
5220 ED	A1		00073	STD	, Y++	
5222 7A	526C		00074	DEC	LINCNT	
5225 26	F7		00075	BNE	LOOP4	
5227 E6	80		00076	LDB	, X+	
5229 E7	A4		00077	STB	, Y	
522B 31	A8 14		00078	LEAY	\$14, Y	
522E 7A	52C8		00079	DEC	\$52C8	
5231 26	E6		00080	BNE	LOOP3	
5233 8E	530E		00081	LDX	#\$530E	
5236 108E	10B3		00082	LDY	#\$10B3	→ Print "Bonus" after "500 Extra"
523A BD	51EA		00083	JSR	PRNST	
523D CC	0010		00084	LDD	#\$10	
5240 FD	5CF2		00085	STD	\$5CF2	
5243 FD	5D03		00086	STD	\$5D03	
5246 BD	5257		00087	JSR	LOOPS	
5249 BD	5257		00088	JSR	LOOPS	
524C BD	5257		00089	JSR	LOOPS	
524F 8E	2000		00090	LDX	#\$2000	
5252 30	1F		00091 LOOP9	LEAX	-1, X	
5254 26	FC		00092	BNE	LOOP9	
5256 39			00093	RTS		
5257 C6	D0		00094 LOOPS	LDB	#\$D0	
5259 F7	526C		00095	STB	LINCNT	
525C BD	5CC8		00096 LOOP6	JSR	\$5CC8	→ Make a beep
525F 7A	526C		00097	DEC	LINCNT	
5262 26	F8		00098	BNE	LOOP6	
5264 8E	1000		00099	LDX	#\$1000	
5267 30	1F		00100 LOOP7	LEAX	-1, X	→ a smaller pause
5269 26	FC		00101	BNE	LOOP7	
526B 39			00102	RTS		
526C 00			00103 LINCNT	FCB	0	→ scratch variable
			526C 00104 LAST	EQU	.-1	
			517E 00105	END	BONUSR	

00000 TOTAL ERRORS

## Program Listing 4 - Data

## Miscellaneous Data

(60)

5260:	55 41 50
5270: 15 00 15 50 00 04 00 00 00 00 40 04 04 40 40 10	UAP
5280: 00 00 04 00 00 00 00 55 04 14 41 40 10 01 01 15	....P.....E..EE.
5290: 01 14 15 00 00 44 44 44 40 15 40 44 04 01 41 00	.....U..AE....
52A0: 40 00 45 04 50 40 10 00 10 04 01 00 05 40 40 44	....DDDE,ED..A.
52B0: 04 40 40 10 00 44 04 11 00 10 40 15 01 50 15 00	E.E.P@.....EED
52C0: 15 41 01 01 41 08 05 10 00 00 01 54 08 00 00 00	.EE..D....E..P..
52D0: 00 01 01 01 00 00 00 00 01 01 01 05 41 01 11	.A..A.....T....
52E0: 40 51 01 54 10 11 01 14 11 05 01 10 10 11 01 10	.....A..
52F0: 11 01 01 04 10 11 05 10 11 05 01 01 05 40 51 10	E@.T.....
5300: 10 51 55 00 00 00 00 00 00 40 40 00 00 00 00 00	.....E@.
5310: 00 00 40 41 50 45 04 04 15 40 55 04 04 50 44 04	..E@P@...EU..PD.
5320: 40 00 40 44 04 40 44 04 15 00 40 44 04 04 40 44 14	E.PD.ED...ED.ED.
5330: 00 40 55 01 50 40 41 44 55 00 01 50 04 04 00 04	.EU.PEADU..P....
5340: 00 50 00 04 04 04 01 50 00 10 00 50 01 10 04 10	.P.....P...P....
5350: 05 54 00 10 00 10 53 5A 53 7A 3C 0F 5B DC 3C 1D	.T....S2Sz(. [.] .
5360: 5B EB 1C 33 5C 79 14 23 5C 71 24 23 5C 81 5C 33	[..]3\y, #\q\$@\.\.3
5370: 5C 79 54 23 5C 71 64 23 5C 81 2F 0F 5B DC 2F 1D	\y7@lqd@V\./[.] /.
5380: 5B EB 49 0F 5B DC 49 1D 5B EB 16 21 5B FB 16 21	[.I.[.I.[.!.!L..!
5390: 5C 19 62 21 5B FB 62 21 5C 19 02 1F 03 1F 02 0F	\.b!C.b!\.\.....
53A0: 03 0F 04 0F 05 0F 03 07 04 07 05 07 06 07 07 07	.....
53B0: 04 03 05 03 06 03 07 03 05 01 06 01 07 01 08 01	.....
53C0: 08 00 00 00 03 1F 02 0F 03 0F 04 0F 05 0F 03 07	.....
53D0: 04 07 05 07 06 07 07 07 08 03 05 03 06 03 07 03	.....
53E0: 05 01 06 01 07 01 08 01 08 00 08 00 08 00 08 01 1F	.....
53F0: 02 1F 03 1F 02 0F 03 0F 04 0F 05 0F 03 07 04 07	.....
5400: 05 07 06 07 07 07 08 03 05 03 06 03 07 03 05 01	.....
5410: 06 01 07 01 08 01 08 00 03 1F 02 0F 03 0F 04 0F	.....
5420: 05 0F 03 07 04 07 05 07 06 07 07 07 08 03 05 03	.....
5430: 06 03 07 03 05 01 06 01 07 01 08 01 08 00 08 00	.....
5440: 08 00 01 1F 02 1F 03 1F 02 0F 03 0F 02 07 03 07	.....
5450: 04 07 02 03 03 03 04 03 03 01 04 01 03 00 04 00	.....
5460: 04 00 04 00 04 00 04 00 04 00 04 00 3F 3F 1F 1F	.....??..
5470: 0F 0F 0F 0F 07 07 07 07 07 03 03 03 03 01 01 01	.....
5480: 01 1C 1C 1C 18 18 18 18 14 14 14 14 14 10 10 10	.....
5490: 0C 0C 0C 0C 08 08 05 00 05 00 05 00 04 00 04 00	.....0.0
54A0: 04 40 03 20 03 20 03 20 03 20 02 00 02 00 02 00	0.
54B0: 02 00 02 00 02 00 02 00 02 00 02 00 02 00 02 00	.....
54C0: 08 00 00 00 01 00 00 00 00 00 00 00 00 00 00 00	.....
54D0: 02 00 00 00 00 00 00 02 00 00 00 00 00 00 02 00	.....
54E0: 00 00 04 00 00 00 00 00 04 00 00 00 00 00 00 00	.....
54F0: 00 00 00 00 04 00 00 00 00 01 00 00 00 00 00 01	.....
5500: 00 00 00 00 00 01 00 00 00 00 00 00 01 05 00 00 00	.....
5510: 00 01 05 00 00 00 00 01 05 00 00 00 00 02 00 00	.....
5520: 00 00 00 02 00 00 00 00 00 00 00 00 00 00 00 00	.....
5530: 00 00 00 00 00 05 00 00 00 00 00 05 00 00 00 00	.....
5540: 00 00 01 00 00 00 00 00 05 00 00 00 00 00 00 00	.....
5550: 00 00 00 00 00 00 00 00 00 01 00 00 00 00 00 00	.....
5560: 05 00 00 00 00 00 02 00 00 55 7E 55 83 55 88 55 8D	.....UU.U.U.
5570: 55 92 55 97 55 9C 55 A1 55 A6 55 AB 55 B0 FC CC	.....U.U.U.U.U.U...
5580: CC CC FC 30 30 30 30 FC 0C FC C0 FC FC 0C FC	...00000.....
5590: 0C FC CC CC FC 0C 0C FC C0 FC 0C FC FC C0 FC CC	.....
55A0: FC FC 0C 0C 0C FC CC FC FC FC CC FC 0C 0C	.....
55B0: 00 00 00 00 00 00	.....

\$Location	Function
5260-52C7	→ Graphic-encoded "500 Extra Message"
52C8	→ Scratch
52C9	→ Bonus Round no.
52CA-5301	→ Graphic-encoded "Round" message
5302-5339	→ Graphic-encoded "Bonus" message
533A-5347	→ Graphic "3" (5x)
5348-5355	→ Graphic "4" (5x7)
5356-5399	→ Special Bonus round pad position tables
539A-5567	→ Complexity tables for better players. Depending on current score, these define a number of changeable items such as speed of game, for difficulty levels
5568-55E4	→ Graphic-encoded 3x5 matrix number set for printing scores

Program Listing 5 - PUTSPR (printing of aliens)

[redacted] → Blotted-out mistakes

55B5		00001	ORG	\$55B5	
55B5 6D	4A	00002	PUTSPR	TST	10, U
55B7 26	01	00003		BNE	PTSPR1
55B9 39		00004		RTS	
55BA 10BE	5E28	00005	PTSPR1	LDY	#\$5E28
55BE A6	45	00006		LDA	5, U
55C0 8E	5DC4	00007		LDX	#\$5DC4
55C3 E6	86	00008		LDB	A, X
55C5 E7	42	00009		STB	2, U
55C7 8E	5DCD	00010		LDX	#\$5DCD
55CA E6	86	00011		LDB	A, X
55CC E7	43	00012		STB	3, U
55CE 48		00013		LSLA	
55CF 10AE	A6	00014		LDY	A, Y
55D2 A6	44	00015		LDA	4, U
55D4 48		00016		LSLA	
55D5 10AE	A6	00017		LDY	A, Y
55D8 E6	C4	00018		LDB	, U
55DA 1F	98	00019		TFR	B, A
55DC BE	5D8D	00020		LDX	\$5D8D
55DF 54		00021		LSRB	
55E0 54		00022		LSRB	
55E1 3A		00023		ABX	
55E2 84	03	00024		ANDA	#3
55E4 48		00025		LSLA	
55E5 10AE	A6	00026		LDY	A, Y
55E8 E6	43	00027		LDB	3, U
55EA F7	563E	00028		STB	\$563E
55ED C6	20	00029		LDB	#\$20
55EF A6	41	00030		LDA	1, U
55F1 3D		00031		MUL	
55F2 30	88	00032		LEAX	D, X
55F4 E6	42	00033	LOOP	LDB	2, U
55F6 F7	563F	00034		STB	\$563F
55F9 C6	20	00035		LDB	#\$20
55FB A6	84	00036	LOOP1	LDA	, X
55FD AA	A0	00037		ORA	, Y+
55FF A7	80	00038		STA	, X+
5601 5A		00039		DEC B	
5602 7A	563F	00040		DEC	\$563F
5605 26	F4	00041		BNE	LOOP1
5607 30	85	00042		LEAX	B, X
5609 7A	563E	00043		DEC	\$563E
560C 26	E6	00044		BNE	LOOP
560E 39		00045		RTS	
560F 6D	4A	00046	ERSPOR	TST	10, U
5611 26	08	00047		BNE	ERSPR1
5613 8E	0032	00048		LDX	#50
5616 30	1F	00049	DELOP1	LEAX	-1, X
5618 26	FC	00050		BNE	DELOP1
561A 39		00051		RTS	
561B C6	20	00052	ERSPR1	LDB	#\$20
561D A6	41	00053		LDA	1, U
561F 3D		00054		MUL	
5620 BE	5D8D	00055		LDX	\$5D8D

5623	30	8B	00056	LEAX	D, X	→ Get screen location of Nestire's 1 <sup>st</sup> byte (62)
5625	E6	C4	00057	LDB	, U	
5627	54		00058	LSRB		
5628	54		00059	LSRB		
5629	3A		00060	ABX		
562A	E6	43	00061	LDB	3, U	→ Vertical height - store it for a loop
562C	F7	563E	00062	STB	\$563E	
562F	4F		00063	CLRA		
5630	5F		00064	CLRB		→ ready to blank
5631	ED	81	00065	LOOPY	STD	
5633	A7	84	00066	STA	, X	
5635	30	88 1E	00067	LEAX	\$1E, X	→ Clear bytes (try to minimize blank time)
5638	7A	563E	00068	DEC	*\$563E	
563B	26	F4	00069	BNE	<u>LOOPY</u>	
563D	39		00070	RTS	.-1	
			563D	EQU	PUTSPR	→ Return
			55B5	END		

00000 TOTAL ERRORS

5630: 54 4D  
 5640: 1C 1F 2E 29 38 3B 4A 35 C4 C7 D6 D1 E0 E3 F2 F0 TM  
 5650: 2C 2F 1E 19 48 4B 3A 25 D4 D7 C6 C1 F0 F3 E2 ED  
 5660: 2C 2F 23 20 21 26 27 24 25 3A 3B 38 39 3E 3F 3C  
 5670: 3D 32 33 30 31 36 37 34 35 4A 4B 48 49 4E 32 3D  
 5680: 7C 7F 43 40 41 46 42 58 41 46 47 54 5D 53 53 50  
 5690: 45 7D 8E 75 51 6D 65 78 66 78 68 68 69 6E 42 4D  
 56A0: 8C 8F 63 60 61 66 78 61 78 7B 7B 78 79 73 7F 7C  
 56B0: 7D 57 68 6F 57 4D 5E 41 5C 42 8B 88 89 8E 52 5D  
 56C0: 9C 9F 83 80 81 86 87 84 85 99 8D 98 99 93 9F 9C  
 56D0: B2 CC CF CC CC AD A5 A5 BB AA AB AB A9 AE A2 AD  
 56E0: 6C 6F A3 A0 A5 BA BB BB A1 A6 BB BB B9 B2 BF BC  
 56F0: 91 AA B3 B0 95 82 9F 80 81 86 87 88 C9 CE 72 7D  
 5700: 3C 3F C3 C0 03 1A 1B 1C 17 16 17 2A 3B 22 23 3E  
 5710: 3F 3E 3F 22 EB EA EB EC DF C6 C7 C8 E9 EE 02 00  
 5720: 4C 4F E3 E0 3E 27 26 E4 30 4B 4A 30 07 FE FF 06  
 5730: 18 03 02 1B 0C F7 F1 F4 E2 FB FA 08 09 0E 12 10  
 5740: DC DF 03 00 01 06 07 DE D3 1A 1B 18 E7 1E 1F E6  
 5750: FF FB 13 10 2F 16 17 14 15 2A 2B 02 29 2E 52 ED  
 5760: 2C 2F 23 20 E5 FA FB 24 FD 3A 3B 38 C5 C2 C3 3C  
 5770: C5 C6 DF D8 35 4A 4B 4C 21 26 27 48 49 4E 32 3D  
 5780: 7C 7F 43 40 41 46 47 44 45 5A 5B 58 EB C5 E9 FC  
 5790: E2 0C E3 50 51 56 57 54 55 6A 6B 68 69 6E 42 4D  
 57A0: 8C 8F 63 D8 E4 D9 C7 D7 D2 EF D8 FF F1 DF F8  
 57B0: F2 E4 08 F4 D1 E7 0F F7 09 F7 09 0E 89 8E 52 5D  
 57C0: 9C 9F 83 80 81 86 84 18 01 3A 15 03 18 06 2B 29  
 57D0: 3D 00 14 0D 12 04 0D 13 29 AA AB AB A9 AE A2 AD  
 57E0: 6C 6F A3 A0 A1 A6 A7 A4 A5 BA 27 23 3C 25 2D 49  
 57F0: 36 36 13 24 48 B6 B7 B4 B5 CA CB C8 C9 CE 72 7D  
 5800: 3C 3F C3 C0 C1 C6 56 54 5E 5B 6F 6A 5E 42 7F 5F  
 5810: 40 43 6E 5D 6E 51 43 53 58 EA EB E8 E9 EE 02 00  
 5820: 4C 4F 3E 39 E8 EB DA C5 F4 F7 E6 E1 10 13 02 00  
 5830: 3C 3F 4E 49 D8 DB EA D5 E4 E7 F6 F1 00 03 12 1D  
 5840: 0F C8 00 00 00 00 00 FC 00 00 00 00 00 00 30 38  
 5850: 00 00 00 00 00 03 03 00 00 00 00 00 00 30 03 FD 3C  
 5860: C8 FC 00 03 03 30 30 FC 33 C8 30 00 0C 33 33 03  
 5870: 00 03 03 30 33 03 3C 30 30 F0 FC 33 33 FF 00 03  
 5880: 03 30 33 FF 30 00 30 33 0C 33 33 00 00 03 03 0C  
 5890: C3 00 30 00 0F C8 F3 33 30 FC 00 00 FC 03 00 FC  
 58A0: 30 00 00 00 FF 03 C8 00 00 00 00 00 00 C0 C0 C0  
 58B0: 00 00 00 00 00 00 C8 C8 FC 0C 0C 3F 0C F0 FF  
 58C0: 00 C8 03 0C 0C 0F 0C C8 00 C8 3F 0C 0C FF CC  
 58D0: 00 C8 00 C8 C3 0C 0C 0C 00 C8 03 F0 3C C3 FC  
 58E0: 3F 0C 00 00 00 00 00 0C 00 00 00 00 00 00 00 00  
 58F0: 0C 0C 00 00 00 00 00 00 03 F0 00 00 00 00 00 00  
 5900: 00 40 01 48 00 48 00 40 00 40 01 50 00 00  
 5910: 01 50 04 04 00 00 50 01 00 04 00 05 54 00 00  
 5920: 55 00 00 00 00 00 00 01 54 00 00 10 00 00 40  
 5930: 00 00 40 40 00 00 00 00 00 01 01 00 00 00 00  
 5940: 00 40 00 00 40 41 50 45 04 04 15 40 01 01 05 40  
 5950: 50 45 05 54 15 40 55 04 04 50 44 04 40 00 01 54  
 5960: 10 10 10 50 40 40 00 40 44 04 40 44 04 15 00  
 5970: 01 00 10 10 40 40 15 00 40 44 04 40 44 14 14  
 5980: 00 40 01 00 10 10 40 40 44 00 40 55 01 50 40  
 5990: 41 44 55 00 01 00 05 40 54 40 40 10 55 00 00 00  
 59A0: 00 00 00 00 00 00 00 00 00 20 00 00 00 00 00 00  
 59B0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 59C0: 00 00 00 00 00 00 00 00 00 00 22 A0 FF FF FF FF FF  
 59D0: FF FF FF FF 0A 88 00 00 00 00 00 00 00 00 00 00 00  
 59E0: 00 00 00 00 00 00 00 00 00 00 22 00 FF FF FF FF FF  
 59F0: FF FF

Location	Function
563E - 563F	Scratch usage
5640 - 583F	Title screen, in encoded format - to decode, see page 1 listing 1. The screen is all graphics or alphanumericics. A graphic border surrounds the title, in graphics also, "Star Spas". The printing is this:
	VER 1.0
	(c) 1984 BY DAVID SHADOFF ALL RIGHTS RESERVED LICENSED TO SPECTRAL ASSOCIATES
5840 - 58A3	Graphic-encoded "Game Over" message
58A4 - 58FD	Graphic-encoded "Player" message
58FE - 58FF	Scratch
5900 - 590F	Graphic-encoded "1" (6x7)
5910 - 591F	Graphic-encoded "2" (6x7)
5920 - 599F	Graphic-encoded "Bonus Points" message
59A0 - 5A9F	Border layout for top of play screen
5AA0	Scratch
5AA1 - 5AA2	After XPLODE, transfer address
5AA3	My revision no.
5AA4	Difficulty level (score determined)
5AA5	x-position of ship at bottom

64

5AA6		00001	ORG	\$5AA6
5AA6 34	36	00002 LINE	PSHS	Y, X, B, A
5AA8 B6	5BCB	00003	LDA	STARTX
5AAB B0	5BC9	00004	SUBA	ENDX
5AAE 26	0D	00005	BNE	LINE1
5AB0 B6	5BCD	00006	LDA	STARTY
5AB3 B0	5BC7	00007	SUBA	ENDY
5AB6 26	05	00008	BNE	LINE1
5AB8 BD	5B63	00009	JSR	SET
5ABB 35	B6	00010	PULS	A, B, X, Y, PC
5ABD FC	5BC9	00011 LINE1	LDD	ENDX
5AC0 1F	89	00012	TFR	A, B
5AC2 4F		00013	CLRA	
5AC3 FD	5BDA	00014	STD	ST01
5AC6 FC	5BCB	00015	LDD	STARTX
5AC9 1F	89	00016	TFR	A, B
5ACB 4F		00017	CLRA	
5ACC FD	5BD8	00018	STD	D1
5ACF FC	5BDA	00019	LDD	ST01
5AD2 B3	5BD8	00020	SUBD	D1
5AD5 FD	5BCF	00021	STD	DIRX
5AD8 FC	5BC7	00022	LDD	ENDY
5ADB 1F	89	00023	TFR	A, B
5ADD 4F		00024	CLRA	
5ADE FD	5BDA	00025	STD	ST01
5AE1 FC	5BCD	00026	LDD	STARTY
5AE4 1F	89	00027	TFR	A, B
5AE6 4F		00028	CLRA	
5AE7 FD	5BD8	00029	STD	D1
5AEA FC	5BDA	00030	LDD	ST01
5AED B3	5BD8	00031	SUBD	D1
5AF0 FD	5BD1	00032	STD	DIRY
5AF3 1F	01	00033	TFR	D, X
5AF5 FC	5BD8	00034	LDD	D1
5AF8 FD	5BDA	00035	STD	ST01
5AFB BF	5BD8	00036	STX	D1
5AFE FC	5BCF	00037	LDD	DIRX
5B01 FD	5BDA	00038	STD	ST01
5B04 B6	5BDB	00039	LDA	ST02
5B07 84	80	00040	ANDA	#\$80
5B09 B7	5BD6	00041	STA	ST05
5B0C B6	5BD9	00042	LDA	ST03
5B0F 84	80	00043	ANDA	#\$80
5B11 B7	5BD7	00044	STA	ST04
5B14 78	5BDB	00045 SHIFT	ASL	ST02
5B17 78	5BD9	00046	ASL	ST03
5B1A B6	5BDB	00047	LDA	ST02
5B1D 84	80	00048	ANDA	#\$80
5B1F B1	5BD6	00049	CMPA	ST05
5B22 26	0A	00050	BNE	DSHIFT
5B24 B6	5BD9	00051	LDA	ST03
5B27 84	80	00052	ANDA	#\$80
5B29 B1	5BD7	00053	CMPA	ST04
5B2C 27	E6	00054	BEQ	SHIFT
5B2E FC	5BDA	00055 DSHIFT	LDD	ST01
5B31 FD	5BCF	00056	STD	DIRX
5B34 FC	5BD8	00057	LDD	D1
5B37 FD	5BD1	00058	STD	DIRY
5B3A BD	5B63	00059 NXTBLD	JSR	SET
5B3D FC	5BC9	00060	LDD	ENDX
5B40 B3	5BCB	00061	SUBD	STARTX

→ Check if line is just actually a point.  
If so, set it.

→ Store change in x in Dirx

→ Store change in y in DIRY

Dirx & DIRY may be positive or negative. This compares to find which of the two has a greater absolute value by shifting Dirx & DIRY left to check for a change in status.

→ Store values back in direction variables

5B43	27	14	00062	BEQ	MAYBE	
5B45	FC	5BCB	00063	NOTYET	LDD	STARTX
5B48	F3	5BCF	00064		ADDD	DIRX
5B4B	FD	5BCB	00065		STD	STARTX
5B4E	FC	5BCD	00066		LDD	STARTY
5B51	F3	5BD1	00067		ADDD	DIRY
5B54	FD	5BCD	00068		STD	STARTY
5B57	20	E1	00069		BRA	NXTBLO
5B59	FC	5BC7	00070	MAYBE	LDD	ENDY
5B5C	B3	5BCD	00071		SUBD	STARTY
5B5F	26	E4	00072		BNE	NOTYET
5B61	35	B6	00073		PULS	A, B, X, Y, PC
5B63	34	36	00074	SET	PSHS	Y, X, B, A
5B65	FC	5BCB	00075		LDD	STARTX
5B68	C5	80	00076		BITB	#\$80
5B6A	27	01	00077		BEQ	NOINC
5B6C	4C		00078		INCA	
5B6D	B7	5BD3	00079	NOINC	STA	XPOS
5B70	FC	5BCD	00080		LDD	STARTY
5B73	C5	80	00081		BITB	#\$80
5B75	27	01	00082		BEQ	NOINC1
5B77	4C		00083		INCA	
5B78	B7	5BD4	00084	NOINC1	STA	YPOS
5B7B	F6	5BD4	00085		LDB	YPOS
5B7E	4F		00086		CLRA	
5B7F	54		00087		LSRB	
5B80	54		00088		LSRB	
5B81	5C		00089		INCB	
5B82	FD	5CF2	00090		STD	\$5CF2
5B85	FD	5D03	00091		STD	\$5D03
5B88	7D	5ED5	00092		TST	COLOR
5B8B	27	06	00093		BEQ	NOSOND
5B8D	BD	5CC8	00094		JSR	\$5CC8
5B90	BD	5CC8	00095		JSR	\$5CC8
5B93	BE	5D8D	00096	NOSOND	LDX	\$5D8D
5B96	F6	5BD4	00097		LDB	YPOS
5B99	B6	20	00098		LDA	#\$20
5B9B	3D		00099		MUL	
5B9C	30	8B	00100		LEAX	D, X
5B9E	B6	5BD3	00101		LDA	XPOS
5BA1	1F	89	00102		TFR	A, B
5BA3	84	03	00103		ANDA	#3
5BA5	12		00104		NOP	
5BA6	54		00105		LSRB	
5BA7	54		00106		LSRB	
5BA8	3A		00107		ABX	
5BA9	108E	5BBF	00108		LDY	#TABLE
5BAD	A6	A6	00109		LDA	A, Y
5BAF	1F	89	00110		TFR	A, B
5BB1	53		00111		COMB	
5BB2	E4	84	00112		ANDB	, X
5BB4	B4	5ED5	00113		ANDA	COLOR
5BB7	A7	E2	00114		STA	, -S
5BB9	EA	E0	00115		ORB	, S+
5BBB	E7	84	00116		STB	, X
5BBD	35	B6	00117		PULS	A, B, X, Y, PC
5BBF	C0		00118	TABLE	FCB	\$C0
5BC0	30		00119		FCB	\$30
5BC1	0C		00120		FCB	\$0C
5BC2	03		00121		FCB	\$3
5BC3			00122		RMB	4
5BC7	0000		00123	ENDY	FDB	0
5BC9	0000		00124	ENDX	FDB	0
5BCB	0000		00125	STARTX	FDB	0
5BCD	0000		00126	STARTY	FDB	0
5BCE	2222		00127	DIRY	FDB	0

Set a point. If current x and y both equal their respective eventual values, return-else add the direction values, and do it again.

fix x value

fix y value

Use vertical position for frequency of sound for each pixel. If pixel will turn black (erase line), no sound is produced

Get byte position of pixel in X, and pixel # in A

Get pixel mask in A\*B

Replace old pixel with new one.

5BD1	0000	00128	DIRY	FDB	0
5BD3	00	00129	XPOS	FCB	0
5BD4	00	00130	YPOS	FCB	0
5BD5	00	00131	COLOR	FCB	0
5BD6	00	00132	ST05	FCB	0
5BD7	00	00133	ST04	FCB	0
5BD8	00	00134	D1	FCB	0
5BD9	00	00135	ST03	FCB	0
5BDA	00	00136	ST01	FCB	0
5BDB	00	00137	ST02	FCB	0
	5AA6	00138		END	LINE

→ Mask table & variables' storage

00000 TOTAL ERRORS

Program Listing 8 - Data

(68)

Movement Tables

5BD0:	02 02 03 02	.....
5BE0:	02 03 03 04 05 05 06 06 05 06 06 06 07 06 06	.....
5BF0:	07 07 00 01 01 02 02 01 02 02 1E 02 02 03 02 02	.....
5C00:	03 03 04 05 05 06 06 05 06 06 06 07 06 06 07	.....
5C10:	07 00 01 01 02 02 01 02 02 06 06 05 06 06 05 05	.....
5C20:	04 03 03 02 02 03 02 02 02 02 01 02 02 01 01 00	.....
5C30:	07 07 06 06 07 06 06 3C 01 02 01 02 01 02 01 02	.....(.....
5C40:	01 02 01 02 03 02 03 02 03 02 03 02 03 02 03 02	.....
5C50:	06 07 06 07 06 07 06 07 06 07 06 07 06 05 06 05	.....
5C60:	06 05 06 05 06 05 05 05 30 06 06 06 06 06 06 06	.....0.....
5C70:	06 03 03 03 03 03 03 03 03 01 01 01 01 01 01 01	.....
5C80:	01 06 06 06 06 06 06 06 06 20 05 05 06 05 06 06	.....
5C90:	06 06 06 06 07 06 07 07 08 01 01 02 01 02 02 02	.....
5CA0:	02 02 02 03 02 03 03 03 03 03 02 03 02 02 02 02	.....
5CB0:	02 02 01 02 01 01 00 07 07 06 07 06 06 06 06 06	.....
5CC0:	06 05 06 05 05 05 05 3C	.....(.....

5BDC-5C89 → Tables for orderly movement  
of pods at beginning of each  
screen

5C8A-5CC6 → Table for orderly movement  
of "Armor" wave, once hatched

## Program Listing 9 - Sound Routine

5CC7		00001	ORG	\$5CC7
5CC7	00	00002 SONXBT	FCB	0 → Scratch variable
5CC8 34	16	00003 SOUND	PSHS	X, B, A → Protect registers
5CCA B6	FF01	00004	LDA	\$FF01
5CCD 84	F7	00005	ANDA	#\$F7
5CCF B7	FF01	00006	STA	\$FF01
5CD2 B6	FF03	00007	LDA	\$FF03
5CD5 84	F7	00008	ANDA	#\$F7
5CD7 B7	FF03	00009	STA	\$FF03
5CDA B6	FF23	00010	LDA	\$FF23
5CDD 8A	08	00011	ORA	#8
5CDF B7	FF23	00012	STA	\$FF23
5CE2 B6	5CC7	00013	LDA	SONXBT
5CE5 C6	C0	00014	LDB	#\$C0
5CE7 E7	E2	00015	STB	, -S
5CE9 A8	E0	00016	EORA	, S+
5CEB B7	5CC7	00017	STA	SONXBT
5CEE B7	FF20	00018	STA	\$FF20
5CF1 8E	0001	00019	LDX	#1
	5CF2	00020 SONDX1	EQU	. -2
5CF4 30	1F	00021 SONLP1	LEAX	-1, X
5CF6 26	FC	00022	BNE	SONLP1
5CF8 E7	E2	00023	STB	, -S
5CFA A8	E0	00024	EORA	, S+
5CFc B7	5CC7	00025	STA	SONXBT
5CFF B7	FF20	00026	STA	\$FF20
5D02 8E	0001	00027	LDX	#1
	5D03	00028 SONDX2	EQU	. -2
5D05 30	1F	00029 SONLP2	LEAX	-1, X
5D07 26	FC	00030	BNE	SONLP2
5D09 35	96	00031	PULS	A, B, X, PC
	5D0A	00032 LAST	EQU	. -1
	0000	00033	END	

00000 TOTAL ERRORS

\$5CC7  
 0 → Scratch variable  
 X, B, A → Protect registers  
 → Set up P/A's to make sound.  
 → Take whatever D-A was there, and produce a  
 'click' by complementing most & second-most  
 significant (loudest) bits.  
 → Variable delay for variable frequency  
 → Make another click (other half-cycle).  
 → Other variable delay for variable frequency  
 → Return with registers intact.

→ Blotted-out mistake.

5D0B		00001	ORG
5D0B BD	5D21	00002	RNDSND JSR
5D0E FC	5D3F	00003	LDD
5D11 54		00004	LSRB
5D12 54		00005	LSRB
5D13 4F		00006	CLRA
5D14 5C		00007	INCB
5D15 FD	5D74	00008	STD
5D18 FD	5D85	00009	STD
5D1B BD	5D44	00010	JSR
5D1E 7E	5D44	00011	JMP
5D21 34	16	00012	RNDOM PSHS
5D23 BE	5D41	00013	LDX
5D26 FC	5D3F	00014	LDD
5D29 A8	85	00015	EORA
5D2B E8	86	00016	EORB
5D2D 30	02	00017	LEAX
5D2F 8C	BF00	00018	CMPX
5D32 25	03	00019	BLO
5D34 8E	A000	00020	LDX
5D37 BF	5D41	00021	NEXT STX
5D3A FD	5D3F	00022	STD
5D3D 35	96	00023	PULS
5D3F	0000	00024	RNDNO FDB
5D41	A000	00025	RNDCTN FDB
5D43	00	00026	NOISBT FCB
5D44 34	16	00027	NOISE PSHS
5D46 B6	FF01	00028	LDA \$FF01
5D49 84	F7	00029	ANDA #\$F7
5D4B B7	FF01	00030	STA \$FF01
5D4E B6	FF03	00031	LDA \$FF03
5D51 84	F7	00032	ANDA #\$F7
5D53 B7	FF03	00033	STA \$FF03
5D56 B6	FF23	00034	LDA \$FF23
5D59 8A	08	00035	ORA #8
5D5B B7	FF23	00036	STA \$FF23
5D5E B6	5D43	00037	LDA NOISBT
5D61 BD	5D21	00038	JSR RNDOM
5D64 F6	5D3F	00039	LDB RNDNO
5D67 C4	FC	00040	ANDB #\$FC
5D69 E7	E2	00041	STB , -S
5D6B A8	E0	00042	EORA , S+
5D6D B7	5D43	00043	STA NOISBT
5D70 B7	FF20	00044	STA \$FF20
5D73 8E	0001	00045	LDX #1
	5D74	00046	NOISE1 EQU .-2
5D76 30	1F	00047	NOSLP1 LEAX -1, X
5D78 26	FC	00048	BNE NOSLP1 , -S
5D7A E7	E2	00049	STB , S+
5D7C A8	E0	00050	EORA NOISBT
5D7E B7	5D43	00051	STA \$FF20
5D81 B7	FF20	00052	LDX #1
5D84 8E	0001	00053	EQU .-2
	5D85	00054	NOISE2 EQU -1, X
5D87 30	1F	00055	NOSLP2 LEAX
5D89 26	FC	00056	BNE NOSLP2 , -1, X
5D8B 35	96	00057	PULS A, B, X, PC
	5D8C	00058	LAST EQU .-1

\$5D0B  
RNDOM → Get random no.  
RNDNO  
→ make it a shorter delay (higher pitch), min. delay of 1.  
NOISE1  
NOISE2  
NOISE  
NOISE  
X, B, A → Protect registers  
RNDCTN  
RNDNO  
→ Get stuff ready  
B, X  
A, X  
2, X  
#\$\$BF00  
NEXT  
#\$\$A000  
RNDCTN  
RNDNO  
→ Make sure that counter changes, and stays within ROM's.  
A, B, X, PC → Return  
→ Store number  
\$A000  
0  
→ Scratch values  
X, B, A → Protect registers  
→ Set up PIA's for sound.  
→ Make click as in sound, but with random volume. (thus, noise)  
NOSLP1  
→ Wait (variable)  
NOSLP2  
→ Make same click as above to restore value (Finish cycle)  
A, B, X, PC → Return

00000

00059

END

00000 TOTAL ERRORS

(7)

## Program Listing 11 - "Set a point" Routine

5D8D		00001	ORG	\$5D8D		
5D8D	0E00	00002	SCRST	FDB	\$E00	→ Start of graphic screen mem
5D8F	34	00003	SET	PSHS	Y, X, B, A	→ Save registers
5D91	B6	00004		LDA	YPOS	→ get ypos
5D94	C6	00005		LDB	#\$20	
5D96	BE	5D8D	00006	LDX	SCRST	→ Multiply y-pos by # of bytes/line to get line offset
5D99	3D	00007		MUL		
5D9A	30	00008		LEAX	D, X	→ Get address of line it's on
5D9C	F6	5DBE	00009	LDB	XPOS	→ Get xpos
5D9F	54	00010		LSRB		→ Divide by 4 to get byte offset
5DA0	54	00011		LSRB		
5DA1	3A	00012		ABX		→ Get byte address in X
5DA2	B6	5DBE	00013	LDA	XPOS	→ Get pixel # (0-3) in byte
5DA5	84	00014		ANDA	#3	
5DA7	108E	5DC0	00015	LDY	#TABLE	→ Get pixel mask from table, put in A & B
5DAB	A6	00016		LDA	A, Y	
5DAD	1F	00017		TFR	A, B	→ Put reverse mask in B
5DAF	53	00018		COMB		
5DB0	E4	00019		ANDB	, X	→ Clean out previous pixel contents
5DB2	B4	5DBD	00020	ANDA	COLOR	→ Mask color out of new pixel contents
5DB5	E7	E2	00021	STB	, -S	
5DB7	AA	E0	00022	ORA	, S+	→ Put new pixel contents into byte
5DB9	A7	84	00023	STA	, X	
5DBB	35	B6	00024	PULS	A, B, X, Y, PC	→ Get registers, return
5DBD	00	00025	COLOR	FCB	0	
5DBE	00	00026	XPOS	FCB	0	→ Entry Variables
5DBF	00	00027	YPOS	FCB	0	
5DC0	C0	00028	TABLE	FCB	\$C0	→ Table of pixel masks
5DC1	30	00029		FCB	\$30	
5DC2	0C	00030		FCB	\$0C	
5DC3	03	00031		FCB	\$03	
	0000	00032		END		

00000 TOTAL ERRORS

5DC0: 03 03 02 03 02 02 03 03 06 03 05  
 5DD0: 05 08 06 05 04 06 78 78 7A 78 7A 7C 78 78 5D  
 5DE0: F1 5D F3 5D FC 5E 03 5E 10 5E 15 5E 17 5E 1B 5E  
 5DF0: 22 00 FF 00 01 02 03 04 03 02 01 F8 00 01 02 03  
 5E00: 04 05 FA 00 01 02 03 02 01 00 04 05 06 05 04 F4  
 5E10: 00 01 02 01 FC 00 FF 00 01 02 FD 00 01 02 03 02  
 5E20: 01 FA 00 01 02 03 04 FB 5E 3A 5E 3C 5E 46 5E 52  
 5E30: 5E 60 5E 66 5E 68 5E 6E 5E 76 5E 80 5E 88 5E 90  
 5E40: 5E 98 5E A8 5E A8 5E B8 5E B8 5E C8 5E C8 5E D0  
 5E50: 5E D8 5E E8 5E E8 5E F8 5F 00 5F 00 5F 10  
 5E60: 5F 18 5F 20 5F 28 5F 30 5F 38 5F 40 5F 48 5F 50  
 5E70: 5F 58 5F 60 5F 68 5F 70 5F 78 5F 80 5F 88 5F 90  
 5E80: 60 00 60 12 60 24 60 36 60 48 60 51 60 5A 60 63  
 5E90: 60 6C 60 75 60 7E 60 87 60 90 60 99 60 A2 60 AB  
 5EA0: 60 B4 60 BD 60 C6 60 CF 60 D8 60 E1 60 EA 60 F3  
 5EB0: 60 FC 61 06 61 10 61 1A 61 24 61 2E 61 38 61 42  
 5EC0: 61 4C 61 56 61 60 61 6A 61 74 61 7E 61 88 61 92  
 5ED0: 61 9C 61 A6 61 B0 61 BA 61 C4 61 CE 61 D8 61 E2  
 5EE0: 61 EC 61 FB 62 0A 62 19 62 28 62 37 62 46 62 55  
 5EF0: 62 64 62 73 62 82 62 91 62 A0 62 AF 62 BE 62 CD  
 5F00: 62 DC 62 EB 62 FA 63 09 63 18 63 27 63 36 63 45  
 5F10: 63 54 63 63 63 72 63 81 63 90 63 A0 63 B0 63 C0  
 5F20: 63 D0 63 E0 63 F0 64 00 64 10 64 20 64 30 64 40  
 5F30: 64 50 64 5C 64 68 64 74 64 80 64 8A 64 94 64 9E  
 5F40: 64 AB 64 B2 64 BC 64 C6 64 D0 64 DA 64 E4 64 EE  
 5F50: 64 F8 65 04 65 10 65 1C 65 28 65 34 65 48 65 4C  
 5F60: 65 58 65 64 65 70 65 7C 65 88 65 94 65 A0 65 AC  
 5F70: 65 88 65 CA 65 DC 65 EE 66 00 66 12 66 24 66 36  
 5F80: 66 48 66 5A 66 6C 66 7E 66 90 66 A2 66 B4 66 C6  
 5F90: 66 D8 66 D8 66 D8 5F A0 5F B8 5F D0 5F E8  
 5FA0: 04 00 04 00 04 15 04 00 14 51 45 00 55 44 55 40  
 5FB0: 14 51 45 00 00 15 00 00 01 00 01 00 01 05 41 00  
 5FC0: 05 14 51 40 15 51 15 50 05 14 51 40 00 05 40 00  
 5FD0: 00 40 00 40 00 41 50 40 01 45 14 50 05 54 45 54  
 5FE0: 01 45 14 50 00 01 50 00 00 10 00 10 00 10 54 10  
 5FF0: 00 51 45 14 01 55 11 55 00 51 45 14 00 00 54 00  
 6000: 0F C0 00 3F F0 00 FF FC 00 FF FC 00 3F F0 00 0F  
 6010: C0 00 03 F0 00 0F FC 00 3F FF 00 0F FF C0 00 0F FC  
 6020: 00 03 F0 00 00 FC 00 00 3F 00 00 FF C0 03 FF F0 03  
 6030: 03 FF 00 00 FC 00 00 3F 00 00 FF C0 03 FF F0 03  
 6040: FF F0 00 FF C0 00 3F 00 15 50 00 4F F4 00 15 50  
 6050: 00 05 54 00 13 FD 00 05 54 00 01 55 00 00 84 FF 48  
 6060: 01 55 00 00 55 40 01 3F D0 00 55 40 15 50 00 53  
 6070: F4 00 15 50 00 05 54 00 14 FD 00 05 54 00 01 55  
 6080: 00 05 3F 40 01 55 00 00 55 40 01 4F D0 00 00 55 40  
 6090: 15 50 00 5C F4 00 15 50 00 05 54 00 17 3D 00 00 05  
 60A0: 54 00 01 55 00 05 CF 40 01 55 00 00 55 40 01 73  
 60B0: D0 00 55 40 15 50 00 5F 34 00 15 50 00 05 54 00  
 60C0: 17 CD 00 05 54 00 01 55 00 05 F3 40 01 55 00 00 00  
 60D0: 55 40 01 7C D0 00 55 40 15 50 00 5F C4 00 15 50  
 60E0: 00 05 54 00 17 F1 00 05 54 00 01 55 00 00 05 FC 40  
 60F0: 01 55 00 00 55 40 01 7F 10 00 55 40 00 00 00 00 00  
 6100: AA 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 6110: 00 80 00 00 00 A8 00 00 00 00 00 00 00 00 00 00 00  
 6120: 00 20 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00  
 6130: 02 20 0A 00 22 00 00 00 00 00 00 00 00 00 00 00 00  
 6140: 00 20 00 00 00 22 00 A8 02 20 00 00 00 20 00 00 00  
 6150: 00 00 A2 00 02 00 00 00 00 A0 02 00 00 28 00 00 00  
 6160: 02 00 02 20 00 00 00 20 00 00 00 00 00 00 00 00 00  
 6170: 02 00 00 00 00 00 22 00 00 00 00 00 00 00 00 00 00  
 6180: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

\$ Location	Description
5DC4 - 5DCC	width (rounding up to the nearest byte)
5DD0 - 5DD5	height in pixels (or bytes) as above
5DB0 - 5DDE	maximum x-value (for right-edge cutoff) for each
5DDE - 5E27	tables for animation (not just movement) of Nasties
5E28 - 5F97	tables of locations of graphics data for Nasties
5F98 - 5FFF	tables of graphics data for playership
6000 - 66EA	tables of graphic data itself of Nasties

0.00: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  
 6190: 08 08 02 02 00 88 00 20 00 88 02 02 00 A2 00 .....  
 61A0: 08 00 22 88 20 00 00 80 28 00 02 00 08 A0 08 00 .....  
 61B0: 00 20 0A 20 00 80 02 28 02 00 00 08 02 88 00 20 .....  
 61C0: 00 8A 00 88 02 00 88 00 2A 00 00 88 20 00 00 88 .....  
 61D0: 22 00 0A 80 02 20 00 00 00 20 00 00 88 02 A0 00 88 .....  
 61E0: 02 00 00 08 02 20 00 A8 00 22 00 80 03 00 00 03 .....  
 61F0: 00 00 03 00 00 03 00 00 03 00 00 00 C0 00 00 00 C0 .....  
 6200: 00 00 C8 00 00 C0 00 00 C8 00 00 30 00 00 30 00 00 .....  
 6210: 00 30 00 00 30 00 00 30 00 00 0C 00 00 00 0C 00 00 .....  
 6220: 0C 00 00 0C 00 00 0C 00 05 40 00 04 40 00 04 40 00 04 40 .....  
 6230: 00 04 40 00 05 40 00 01 50 00 01 10 00 81 10 00 00 .....  
 6240: 81 10 00 01 50 00 00 54 00 00 44 00 00 44 00 00 00 .....  
 6250: 44 00 00 54 00 00 15 00 00 11 00 00 11 00 00 11 00 .....  
 6260: 00 00 15 00 15 50 00 10 10 00 10 10 00 10 10 00 10 00 .....  
 6270: 15 50 00 05 54 00 04 04 00 04 04 00 04 04 00 04 00 05 .....  
 6280: 54 00 01 55 00 01 01 00 01 01 00 01 01 00 01 55 00 01 55 .....  
 6290: 00 00 55 40 00 40 40 00 40 40 00 40 40 00 40 40 00 55 40 .....  
 62A0: 55 54 00 40 04 00 40 04 00 40 04 00 40 04 00 55 54 00 15 .....  
 62B0: 55 00 10 01 00 10 01 00 10 01 00 15 55 00 05 55 .....  
 62C0: 40 04 00 40 04 00 40 04 00 40 05 55 40 01 55 50 .....  
 62D0: 81 00 10 01 00 10 01 00 10 01 55 50 02 00 00 00 0A .....  
 62E0: 00 00 0A 80 00 0A 80 00 02 00 00 00 80 00 00 02 A0 .....  
 62F0: 00 02 A0 00 02 A0 00 00 80 00 00 20 00 00 A0 00 .....  
 6300: 00 A8 00 00 A8 00 00 20 00 00 00 00 00 2A 00 00 .....  
 6310: 2A 00 00 2A 00 00 00 00 02 00 00 0A 80 00 2A A0 .....  
 6320: 00 0A 80 00 02 00 00 00 00 00 02 A0 00 0A A0 00 .....  
 6330: 02 A0 00 00 88 00 00 20 00 00 A8 00 02 AA 00 00 .....  
 6340: A8 00 00 20 00 00 08 00 00 2A 00 00 AA 00 00 2A .....  
 6350: 00 00 08 00 02 00 00 2A A0 00 AA A0 00 2A A0 00 .....  
 6360: 02 00 00 00 80 00 0A A8 00 2A AA 00 0A AB 00 00 .....  
 6370: 80 00 00 20 00 02 AA 00 0A AA 00 02 AA 00 00 20 .....  
 6380: 00 00 08 00 00 AA 00 02 AA A0 00 AA 00 00 08 00 .....  
 6390: AA 00 00 00 00 AA 00 33 00 33 C8 30 00 F0 00 .....  
 63A0: 2A A0 22 20 22 20 2A A0 0C C0 0C F0 0C 00 3C 00 .....  
 63B0: 0A A8 08 88 08 88 0A A8 03 30 03 3C 03 00 0F 00 .....  
 63C0: 02 AA 02 22 02 22 02 AA 00 CC 00 CF 00 C0 03 C0 .....  
 63D0: AA 00 88 88 00 AA 00 33 00 33 00 F3 C0 00 00 .....  
 63E0: 2A A0 22 20 22 20 2A A0 0C C0 0C C0 00 3C F0 00 00 .....  
 63F0: 0A A8 08 88 08 88 0A A8 03 30 03 30 0F 3C 00 00 .....  
 6400: 02 AA 02 22 02 22 02 AA 00 CC 00 CC 03 CF 00 00 .....  
 6410: AA 00 88 88 80 AA 00 33 00 F3 00 03 00 03 C0 .....  
 6420: 2A A0 22 20 22 20 2A A0 0C C0 3C C0 00 C0 00 F0 .....  
 6430: 0A A8 08 88 08 88 0A A8 03 30 03 30 00 30 00 3C .....  
 6440: 02 AA 02 22 02 22 02 AA 00 CC 00 CC 03 CC 00 0C 00 0F .....  
 6450: 44 40 55 40 55 40 44 40 04 00 04 00 11 10 15 50 .....  
 6460: 15 50 11 10 01 00 01 00 04 44 05 54 05 54 04 44 .....  
 6470: 00 40 00 40 01 11 01 55 01 55 01 11 00 10 00 10 .....  
 6480: 54 00 44 00 44 00 44 00 54 00 15 00 11 00 11 00 00 .....  
 6490: 11 00 15 00 05 40 04 40 04 40 04 40 05 40 01 50 .....  
 64A0: 01 10 01 10 01 10 01 50 A8 00 88 00 88 00 88 00 .....  
 64B0: A8 00 2A 00 22 00 22 00 22 00 2A 00 0A B0 00 88 00 .....  
 64C0: 08 00 08 00 0A 00 02 A0 02 20 02 20 02 20 02 A0 .....  
 64D0: FC 00 CC 00 CC 00 CC 00 FC 00 3F 00 33 00 33 00 .....  
 64E0: 33 00 3F 00 0F D0 0C C0 0C D0 0C D0 0F D0 03 F0 .....  
 64F0: 03 30 03 30 03 30 03 F0 A0 28 00 08 80 00 07 00 .....  
 6500: 00 00 00 00 28 0A 00 02 20 00 01 C0 00 00 00 00 .....  
 6510: 0A 02 00 00 88 00 00 70 00 00 00 00 02 80 A0 00 .....  
 6520: 22 00 00 1C 00 00 00 00 00 00 00 A8 AB 00 07 00 .....  
 6530: 00 00 00 00 00 00 00 00 2A 2A 00 01 C0 00 00 00 00 .....  
 6540: 00 00 00 0A 8A 00 70 00 00 00 00 00 00 00 00 02 .....  
 6550: A2 A0 00 1C 00 00 00 00 00 00 00 28 A0 00 07 00 .....  
 6560: 00 00 00 00 00 00 00 0A 28 00 21 C2 00 00 00 00 .....  
 6570: 00 00 00 02 8A 00 08 70 00 00 00 00 00 00 00 00 .....  
 6580: A2 B0 02 1C 20 00 00 00 00 00 00 08 80 00 27 20 .....

6590: 00 80 00 00 00 00 00 02 20 00 09 C8 00 20 02 00 ..... , .. .  
65A0: 00 00 00 00 BB 00 02 72 00 08 00 80 00 00 00 00 ..... r.....  
65B0: 22 00 00 9C B0 02 00 20 CC CC 00 CC CC 00 33 30 "..... .30  
65C0: 00 33 30 00 CC CC 00 CC CC 00 33 33 00 33 33 00 .30..... 33,33.  
65D0: 00 CC 00 0C CC 00 33 33 00 33 33 00 0C CC 00 0C ..... 33,33.....  
65E0: CC C0 03 33 00 03 33 00 0C CC 00 0C CC 00 03 33 ...3..3.....3  
65F0: 30 03 33 30 00 CC C0 00 CC C0 03 33 30 03 33 30 0.30.....30,30  
6600: C3 00 00 C3 00 00 0C 0C 00 0C 0C 00 C0 00 00 .....  
6610: C0 20 30 C0 00 30 C0 00 03 03 00 03 03 00 30 30 ..0..0.....00  
6620: 00 30 30 00 0C 30 00 0C 30 20 00 C0 00 C0 00 .....00..0..0.....  
6630: 0C 0C 00 0C 0C 20 03 0C 00 03 0C 00 00 30 30 00 .....00.  
6640: 30 30 03 03 00 03 03 00 0C 00 00 0C 00 00 00 30 00 00.....0  
6650: 00 00 30 00 30 00 00 30 00 00 03 00 00 03 00 00 ..0.0..0.....  
6660: 00 0C 00 00 0C 00 0C 00 00 0C 00 00 08 C0 00 00 .....  
6670: C0 00 00 03 20 00 03 00 03 00 00 03 00 00 00 30 .....0  
6680: 00 00 30 20 00 20 00 00 C0 00 00 C0 00 00 C0 00 ..0.....  
6690: C0 00 00 00 00 02 03 00 00 03 00 00 00 00 00 00 .....  
66A0: 00 20 00 00 00 20 00 00 00 00 00 00 C0 00 00 00 .....  
66B0: 20 00 00 00 00 00 20 00 00 00 00 00 30 00 00 30 00 .....0..0.  
66C0: 00 00 00 00 00 00 00 00 00 00 00 00 00 0C 00 00 .....  
66D0: 0C 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....  
66E0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....