Neptune Lander

Physics Engine In Practice

(Tutorial 33)

VIC II Chip

Hex Address	Decimal Address	Offset	Function							
D000	53248	0	Sprite 0 X- Position (Low X Byte)							
D001	53249	1	Sprite 0 Y- Position							
D002	53250	2	Sprite 1 X- Position (Low X Byte)							
D003	53251	3	Sprite 1 Y- Position							
D004	53252	4	Sprite 2 X- Position (Low X Byte)							
D005	53253	5	Sprite 2 Y- Position							
D006	53254	6	Sprite 3 X- Position (Low X Byte)							
D007	53255	7	Sprite 3 Y- Position							
D008	53256	8	Sprite 4 X- Position (Low X Byte)							
D009	53257	9	Sprite 4 Y- Position							
D00A	53258	10	Sprite 5 X- Position (Low X Byte)							
D00B	53259	11	Sprite 5 Y- Position							
D00C	53260	12	Sprite 6 X- Position (Low X Byte)							
D00D	53261	13	Sprite 6 Y- Position							
D00E	53262	14	Sprite 7 X- Position (Low X Byte)							
D00F	53263	15	Sprite 7 Y- Position							
D010	53264	16	High Bit of Sprite X- Position							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D011	53265	17		Extended Colour Mode	Bitmap Mode	Screen Blanking	No Of Rows	Vertical Screen Position		
			Bit 8	1 = on	1 = on	0 = blank	1 = 25 / 0 = 24		0-7 pixels	
D012	53266	18	Raster Scan Line and Write Register for Raster Interupts							
			Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0

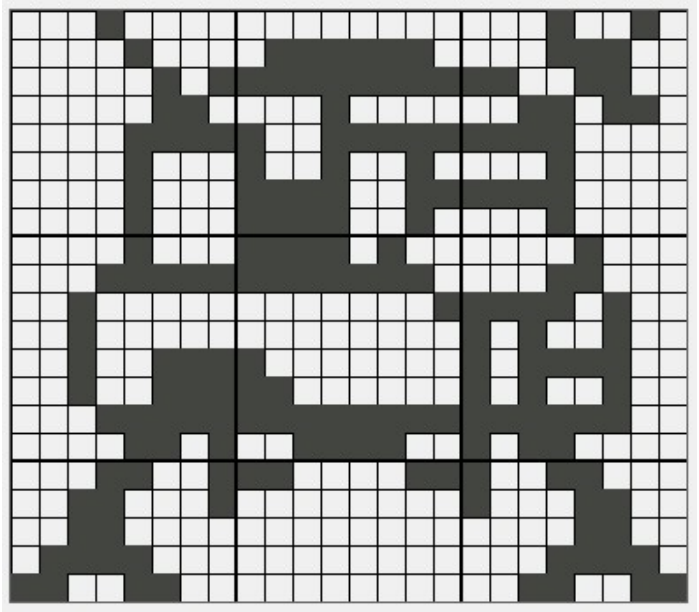
VIC II Chip

D013	53267	19	Light Pen Horizontal Position							
D014	53268	20	Light Pen Vertical Position							
D015	53269	21	Enable Sprites (1 = on / 0 = off)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D016	53270	22			Chip Reset	MultiColour Mode	No Of Cols	Horizonal Screen Position		
			1	1	0 = Normal	1 = Enable	1 = 40 / 0 = 38		0-7 Pixels	
D017	53271	23	Sprite Vertical Expansion (1 = on / 0 = off)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D018	53272	24	Screen Base Address				Character Definition Base			
			Bit 13	Bit 12	Bit 11	Bit 10	Bit 13	Bit 12	Bit 11	1
D019	53273	25	Interrupt Flag and Write Register to Clear Flags (1 = Interrupts, 0 = No Interrupts)							
			1 = Interrupts / 0 = No Interrupts	1	1	1	Light Pen	Sprite To Sprite Collision	Sprite to Data Collision	Raster Scan
D01A	53274	26	Interrupt Enable (1 = Enabled / 0 = No Enabled)							
			1	1	1	1	Light Pen	Sprite To Sprite Collision	Sprite to Data Collision	Raster Scan
D01B	53275	27	Sprite - Data Priority (1 = Data / 0 = Sprite)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D01C	53276	28	Sprite Multi Colour Mode (1 = MultiColour / 0 = Hi-Res)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D01D	53277	29	Sprite Horizonal Expansion (1 = on / 0 = off)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D01E	53278	30	Sprite To Sprite Collision Register (Cleared Only when Read)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0
D01F	53279	31	Sprite - Data Collision Register (Cleared Only When Read)							
			Sprite 7	Sprite 6	Sprite 5	Sprite 4	Sprite 3	Sprite 2	Sprite 1	Sprite 0

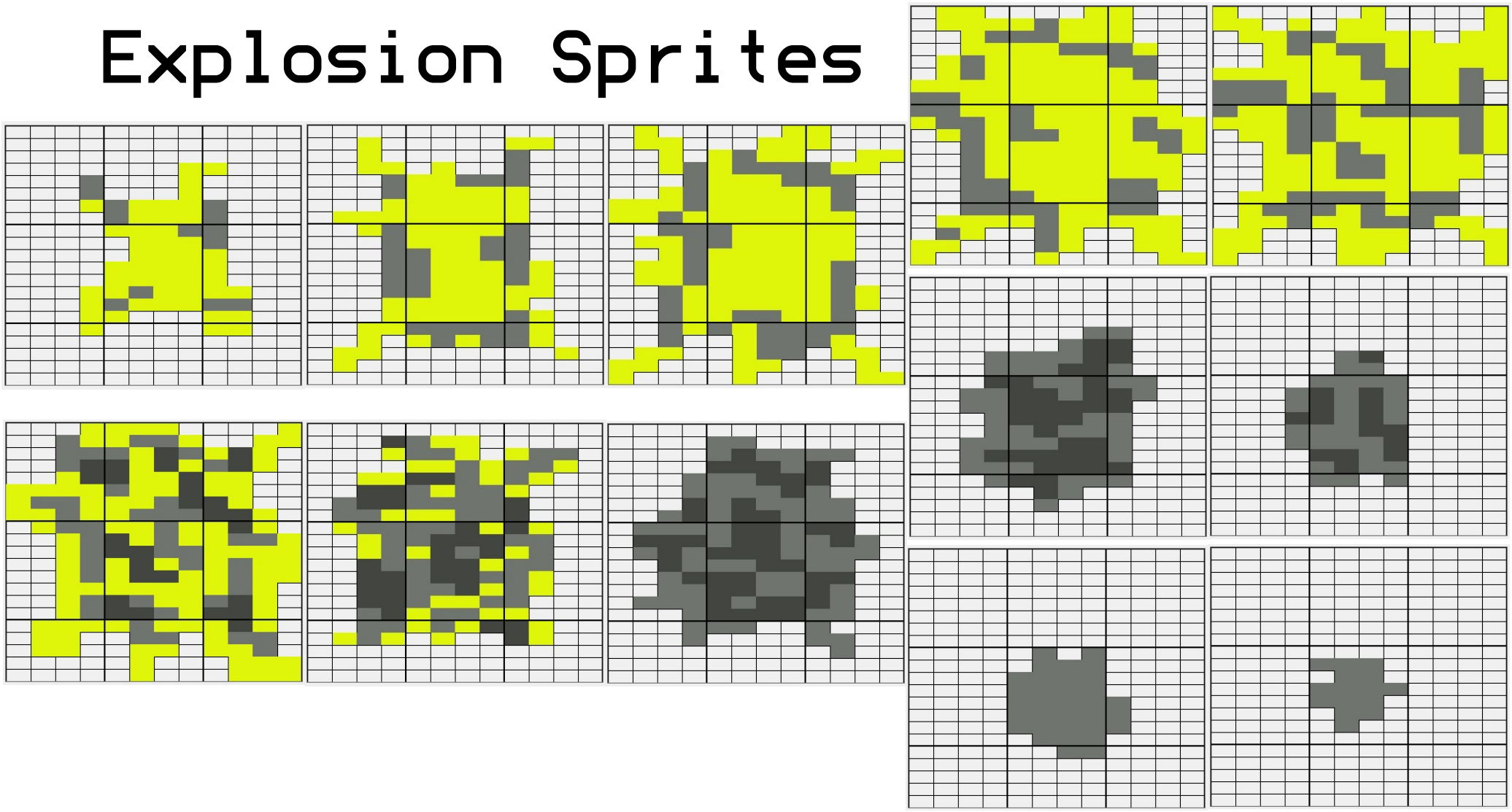
VIC II Chip

D020	53280	32	1	1	1	1	Border Colour (0-15)
D021	53281	33	1	1	1	1	Background Colour 0 (0-15)
D022	53282	34	1	1	1	1	Background Colour 1
D023	53283	35	1	1	1	1	Background Colour 2
D024	53284	36	1	1	1	1	Background Colour 3
D025	53285	37	1	1	1	1	Sprite Multicolour 0
D026	53286	38	1	1	1	1	Sprite Multicolour 1
D027	53287	39	1	1	1	1	Sprite Colour 0
D028	53288	40	1	1	1	1	Sprite Colour 1
D029	53289	41	1	1	1	1	Sprite Colour 2
D02A	53290	42	1	1	1	1	Sprite Colour 3
D02B	53291	43	1	1	1	1	Sprite Colour 4
D02C	53292	44	1	1	1	1	Sprite Colour 5
D02D	53293	45	1	1	1	1	Sprite Colour 6
D02E	53294	46	1	1	1	1	Sprite Colour 7

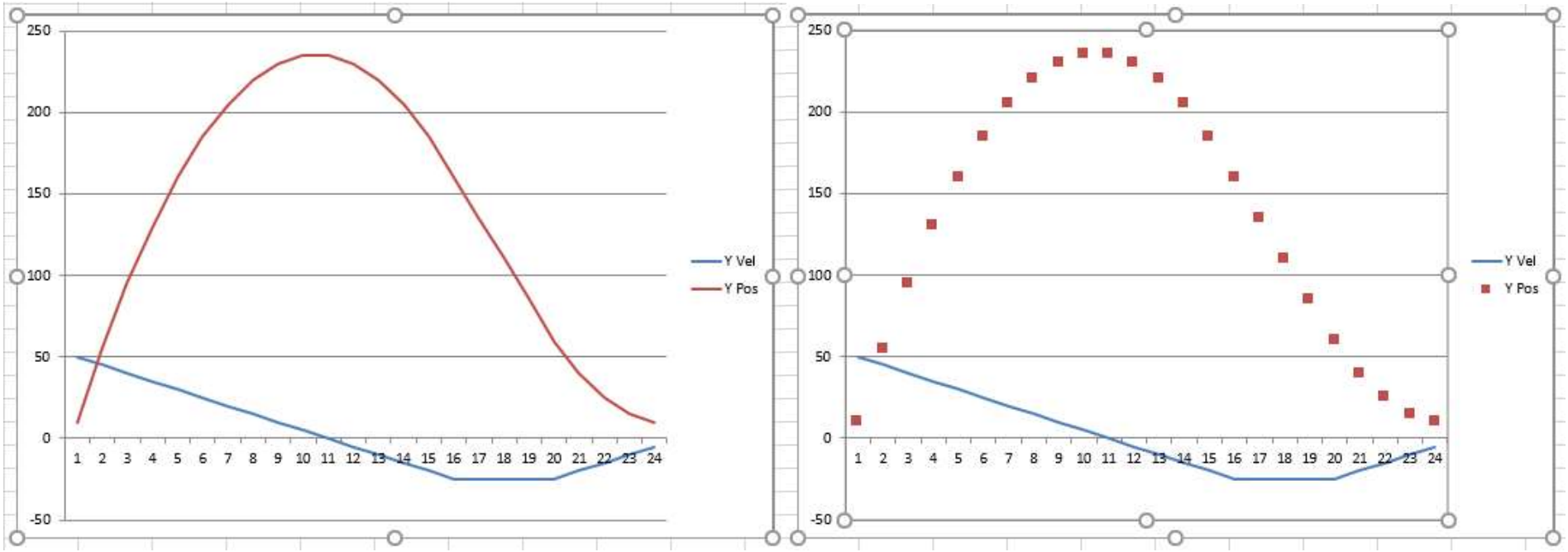
Lander Sprite



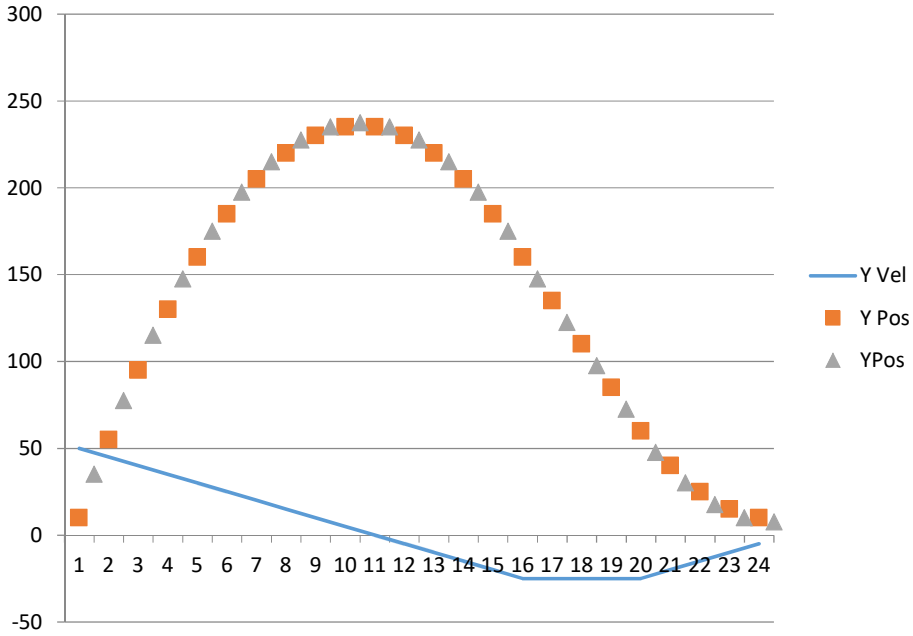
Explosion Sprites



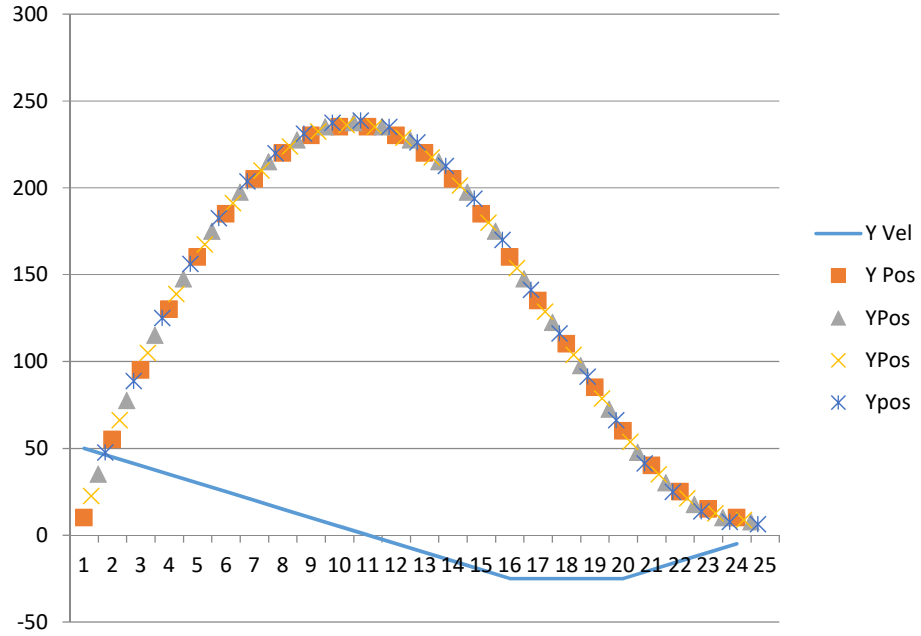
Time and Motion



Time and Motion



Time / 2



Time / 4