

```

002                ORG      :DBFB
003                *
004                *
005                *
006                * =====
007                *** INTERRUPT HANDLER ***
008                * =====
009                *
010                *
011                *****
012                * INITIALISE INTERRUPT SYSTEM *
013                *****
014                *
015                * Initialises the interrupt system of the machine.
016                *
017                * Entry: No conditions.
018                * Exit: All registers corrupted.
019                *
020 DBFB 21F8FF    INTINI  LXI    H,:FFF8    Address int.mask register
021 DBFE 3E04      MVI    A,:04
022 D900 77       MOV    M,A          Only stack interrupt
023 D901 325F00   STA    :005F       Remember int. mask
024 D904 2EF4     MVI    L,:F4
025 D906 3E0C     MVI    A,:0C
026 D908 77       MOV    M,A          Select ext.int. and INTA
027 D909 3C      INR    A
028 D90A 77       MOV    M,A          Reset
029 D90B 3E0C     MVI    A,:0C
030 D90D 32C001  STA    :01C0       Init. cursor timer
031 D910 3E02     MVI    A,:02
032 D912 32C101  STA    :01C1       Init. keyboard scan counter
033 D915 CDA3D9   CALL   :D9A3       Reload sound timer
034 D918 CD9DD9   CALL   :D99D       Reload keyboard timer
035 D91B CD49D9   CALL   :D949       Set up int. entry points
036
037                * Set-up interrupt vectors (also entry from utility)
038
039 D91E 21A9D9    INTSU  LXI    H,:D9A9
040 D921 227000    SHLD   :0070       Clock int. vector (7)
041 D924 2178D5    LXI    H,:D578
042 D927 226E00    SHLD   :006E       Keyboard int. vector (6)
043 D92A 21FDC6    LXI    H,:C6FD
044 D92D 226C00    SHLD   :006C       Screen restart vector (5)
045 D930 21C0C6    LXI    H,:C6C0
046 D933 226A00    SHLD   :006A       Math. restart vector (4)
047 D936 2155D7    LXI    H,:D755
048 D939 226800    SHLD   :0068       Sound int. vector (3)
049 D93C 21E2D9    LXI    H,:D9E2
050 D93F 226600    SHLD   :0066       Stack int. vector (2)
051 D942 210EC7    LXI    H,:C70E
052 D945 226400    SHLD   :0064       Utility/encode vector (1)
053 D948 C9       RET
054                *
055                * SET UP INTERRUPT VECTOR AREA:
056                *
057                * Sets up the vector area 0000-003F.
058                *
059                * Entry: No conditions.
060                * Exit: All registers corrupted.
061                *
062 D949 010000    VECSU  LXI    B,:0000    Start at zero
063 D94C 116BD9    VCS10  LXI    D,:D96B    Startaddr. int. routine

```



```

126                                     *
127 D988 C5                            KBEI     PUSH   B
128 D989 0140FF                        LXI     B, :FF40     Enable keyboard interrupts
129 D98C C377D9                        JMP     :D977     Update int. mask
130                                     *
131 *****
132 * DISABLE SOUND INTERRUPTS *
133 *****
134 *
135 * Disables sound interrupts only.
136 *
137 D98F C5                            SNDDI    PUSH   B
138 D990 0100F7                        LXI     B, :F700     Disable sound interrupts
139 D993 C377D9                        JMP     :D977     Update int. mask
140                                     *
141 *****
142 * ENABLE SOUND INTERRUPTS *
143 *****
144 *
145 * Enables sound interrupts only.
146 *
147 D996 C5                            SNDEI    PUSH   B
148 D997 0108FF                        LXI     B, :FF08     Enable sound interrupts
149 D99A C377D9                        JMP     :D977     Update int. mask
150                                     *
151 *****
152 * LOAD KEYBOARD TIMER *
153 *****
154 *
155 * Starts a keyboard interrupt.
156 *
157 D99D 3EFF                            KBIS     MVI     A, :FF     Init. 16.32 msec
158 D99F 32FCFF                        STA     :FFFC     Load timer 4 (keyboard)
159 D9A2 C9                             RET
160                                     *
161 *****
162 * LOAD SOUND TIMER *
163 *****
164 *
165 * Starts a sound interrupt.
166 *
167 D9A3 3E50                            SNDIS    MVI     A, :50     Init. 5.12 msec
168 D9A5 32FBFF                        STA     :FFFB     Load timer 3 (sound)
169 D9AB C9                             RET
170                                     *
171 *****
172 * CLOCK INTERRUPT (RST 7) *
173 *****
174 *
175 * Triggered every 20 msec by the TV page
176 * blanking signal.
177 * Decrements timer 01BE/BF until 0. Checks also
178 * the contents of cursor clock timer 01C0. It is
179 * decremented; if it becomes 0, the timer is re-
180 * loaded and the cursor is flashed.
181 *
182 * Exit: All registers preserved.
183 *
184 D9A9 F5                            CLKINT    PUSH   PSW
185 D9AA C5                             PUSH   B
186 D9AB D5                             PUSH   D
187 D9AC 3A5F00                        LDA     :005F     Get current int. mask

```

```

188 D9AF F5          PUSH  PSW          and remember it
189 D9B0 3E04        MVI   A,:04
190 D9B2 32F8FF      STA   :FFFB        Set stack interrupt only
191 D9B5 FB          EI
192 D9B6 2ABE01      LHLD  :01BE        Get timer contents
193 D9B9 7C          MOV   A,H
194 D9BA B5          ORA   L
195 D9BB CAC2D9      JZ    :D9C2        If timer = 0
196 D9BE 2B          DCX   H            Else:
197 D9BF 22BE01      SHLD  :01BE        decrement timer
198 D9C2 21C001      CKI10 LXI   H,:01C0  Addr. cursor clock
199 D9C5 35          DCR   M            Decr. clock
200 D9C6 C2CDD9      JNZ   :D9CD        Return if <>0
201 D9C9 360F        MVI   M,:0F        Load 20 ms flash time
202 D9CB EF          RST   5            Flash cursor
203 D9CC 12          DATA :12
204
205 *
206 * GENERAL INTERRUPT RETURN:
207 *
208 * Restores interrupt mask and all registers.
209 *
210 * Entry: Interrupt mask and all registers on stack.
211 *
211 D9CD F1          INTRM POP   PSW        Get old int. mask
212 D9CE F3          DI
213 D9CF 32F8FF      STA   :FFFB        Restore int. mask
214 D9D2 325F00      STA   :005F        and remember it.
215 D9D5 FB          EI
216 D9D6 D1          POP   D
217 D9D7 C1          POP   B
218 D9D8 F1          POP   PSW
219 D9D9 E1          POP   H
220 D9DA C9          RET
221
222 *
223 *****
224 * ENABLE CLOCK INTERRUPT *
225 *****
226 *
226 D9DB C5          CLKEI PUSH  B
227 D9DC 0180FF      LXI   B,:FFB0      Enable clock interrupt
228 D9DF C377D9      JMP   :D977        Update int.mask
229
230 *
231 *****
232 * STACK INTERRUPT (RST2) *
233 *****
234 *
235 * This routine handles an interrupt caused by the
236 * stack overflow hardware logic.
237 *
237 D9E2 3100F9      SPINT LXI   SP,:F900   Reset stackpointer
238 D9E5 AF          XRA   A
239 D9E6 321701      STA   :0117        No running inputs
240 D9E9 322201      STA   :0122        No encoding of stored line
241 D9EC CD43D7      CALL  :D743        Input from keyboard, reload
242                                     timers sound/keyb
243 D9EF FB          EI
244 D9F0 3E16        MVI   A,:16
245 D9F2 C3F5D9      JMP   :D9F5        Run error 'STACK OVERFLOW'
246
247 *
248 *
249 *

```