SCP and MSA #defines for the SpeakJet

```
/*
 *  IIC_SpeakJetDefines.h
 *  kII.2
 *
 *  Created by Michael Markert, audiocommander.de on 20.05.06
 *  Based on Speakjet control codes from July 27, 2004 version of Speakjet
Manual
 *   and ASM-Version of Doug Elliott, VA3DAE
 *
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 *
 */

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 */


#ifndef _IIC_SPEAKJETDEFINES_H
#define _IIC_SPEAKJETDEFINES_H



// ********* SPEAKJET SCP ************* //
// Serial Control Protocol
#ifdef _DEBUG_C
    #pragma mark -
    #pragma mark SCP
#endif

// escape character ('\') 0x5C to enter SCP Mode
#define SCP_ESCAPE                '\\'
#define SCP_SEL0              '0'
#define SCP_SEL1              '1'
#define SCP_SEL2              '2'
```

```
#define SCP_SEL3              '3'
#define SCP_SEL4              '4'
#define SCP_SEL5              '5'
#define SCP_SEL6              '6'
#define SCP_SEL7              '7'
#define SCP_EXIT              'X'

#define SCP_READY             'V'
#define SCP_CLEAR_BUFFER      'R'
#define SCP_START             'T'
#define SCP_STOP              'S'

#define SCP_MEMTYPE               'H'
#define SCP_MEMADDR               'J'
#define SCP_MEMWRT                'N'

#define SCP_RESET             'W'


// ********* SPEAKJET SCP REGISTERS **** //
// SCP Registers & MAX Values
#ifdef _DEBUG_C
    #pragma mark -
    #pragma mark SCP REGISTERS & MAX VALUES
#endif

// == SCP_MEMTYPE (H) ==
#define SCP_MEMTYPE_REGISTER  '0'
#define SCP_MEMTYPE_EEPROM_H  '3'
#define SCP_MEMTYPE_EEPROM_L  '2'

// == SCP_MEMADDR (J) ==
// Envelope
#define SCP_ENV_FREQ          '0'
#define SCP_ENV_CTRL          '8'
// Oscillator Frequency Register (not used, calculated)
#define SCP_OSC1_FREQ         '1'
#define SCP_OSC2_FREQ         '2'
#define SCP_OSC3_FREQ         '3'
#define SCP_OSC4_FREQ         '4'
#define SCP_OSC5_FREQ         '5'
// Oscillator Level Register (not used, calculated)
#define SCP_OSC1_LEVEL            11
#define SCP_OSC2_LEVEL            12
#define SCP_OSC3_LEVEL            13
#define SCP_OSC4_LEVEL            14
#define SCP_OSC5_LEVEL            15
// Distortion
#define SCP_DISTORTION            '6'
// Master
#define SCP_MASTER_VOLUME     '7'
```

```
// == SCP_MEMWRT (N) ==
//    ENVType (send ENVType + ENVState!)
#define SCP_ENV_SAW               '2'
#define SCP_ENV_SINE          '3'
#define SCP_ENV_TRIANGLE      '4'
#define SCP_ENV_SQUARE            '5'
//    ENVState (send ENVType + ENVState!)
#define SCP_ENV_OSC123            0x40
#define SCP_ENV_OSC45         0x80
//  Default values
#define SCP_FREQ_DEFAULT      440
#define SCP_LEVEL_DEFAULT     20    // 63 MAX for Mixer 1: OSC 1, 2 & 3
//  Maximum accepted values
#define SCP_FREQ_MAX          3999
#define SCP_LEVEL_MAX         31
#define SCP_DISTORTION_MAX        255
#define SCP_MASTER_VOLUME_MAX 255









// ********* SPEAKJET MSA ************* //
// Mathmatical Sound Architecture
#ifdef _DEBUG_C
    #pragma mark -
    #pragma mark MSA Control Codes
#endif


// 0 - 31 CONTROL CODES
#define MSA_PAUSE0            0        // 0ms
#define MSA_PAUSE1            1        // 100ms
#define MSA_PAUSE2            2        // 200ms
#define MSA_PAUSE3            3        // 700ms
#define MSA_PAUSE4            4        // 30ms
#define MSA_PAUSE5            5        // 60ms
#define MSA_PAUSE6            6        // 90ms

#define MSA_NEXTFAST      7
#define MSA_NEXTSLOW      8
#define MSA_NEXTHIGH      14
#define MSA_NEXTLOW           15

#define MSA_WAIT          16
```

```
#define MSA_VOLUME            20
#define MSA_SPEED         21
#define MSA_PITCH         22
#define MSA_BEND          23

#define MSA_PORTCTR           24
#define MSA_PORT          25

#define MSA_REPEAT            26

#define MSA_CALLPHRASE        28
#define MSA_GOTOPHRASE        29

#define MSA_DELAY         30
#define MSA_RESET         31

// 32 - 127 (Reserved)
#ifdef _DEBUG_C
    #pragma mark MSA (Reserved)
#endif

// 128 - 254 SOUNDCODES
#ifdef _DEBUG_C
    #pragma mark MSA Sound Codes
#endif

// MSA Sound Codes: Phonemes
#define MSAPH_IY          128
#define MSAPH_IH          129
#define MSAPH_EY          130
#define MSAPH_EH          131
#define MSAPH_AY          132
#define MSAPH_AX          133
#define MSAPH_UX          134
#define MSAPH_OH          135
#define MSAPH_AW          136
#define MSAPH_OW          137
#define MSAPH_UH          138
#define MSAPH_UW          139
#define MSAPH_MM          140
#define MSAPH_NE          141
#define MSAPH_NO          142
#define MSAPH_NGE         143
#define MSAPH_NGO         144
#define MSAPH_LE          145
#define MSAPH_LO          146
#define MSAPH_WW          147
#define MSAPH_RR          148
#define MSAPH_IYRR            149
#define MSAPH_EYRR            150
#define MSAPH_AXRR            151
```

```
#define MSAPH_AWRR            152
#define MSAPH_OWRR            153
#define MSAPH_EYIY            154
#define MSAPH_OHIY            155
#define MSAPH_OWIY            156
#define MSAPH_OHIH            157
#define MSAPH_IYEH            158
#define MSAPH_EHLL            159
#define MSAPH_IYUW            160
#define MSAPH_AXUW            161
#define MSAPH_IHWW            162
#define MSAPH_AYWW            163
#define MSAPH_OWWW            164
#define MSAPH_JH          165
#define MSAPH_VV          166
#define MSAPH_ZZ          167
#define MSAPH_ZH          168
#define MSAPH_DH          169
#define MSAPH_BE          170
#define MSAPH_BO          171
#define MSAPH_EB          172
#define MSAPH_OB          173
#define MSAPH_DE          174
#define MSAPH_DO          175
#define MSAPH_ED          176
#define MSAPH_OD          177
#define MSAPH_GE          178
#define MSAPH_GO          179
#define MSAPH_EG          180
#define MSAPH_OG          181
#define MSAPH_CH          182
#define MSAPH_HE          183
#define MSAPH_HO          184
#define MSAPH_WH          185
#define MSAPH_FF          186
#define MSAPH_SE          187
#define MSAPH_SO          188
#define MSAPH_SH          189
#define MSAPH_TH          190
#define MSAPH_TT          191
#define MSAPH_TU          192
#define MSAPH_TS          193
#define MSAPH_KE          194
#define MSAPH_KO          195
#define MSAPH_EK          196
#define MSAPH_OK          197
#define MSAPH_PE          198
#define MSAPH_PO          199

// MSA Sound Codes: Robot
#define MSAFX_ROBOT_0     200
```

```
#define MSAFX_ROBOT_1     201
#define MSAFX_ROBOT_2     202
#define MSAFX_ROBOT_3     203
#define MSAFX_ROBOT_4     204
#define MSAFX_ROBOT_5     205
#define MSAFX_ROBOT_6     206
#define MSAFX_ROBOT_7     207
#define MSAFX_ROBOT_8     208
#define MSAFX_ROBOT_9     209

// MSA Sound Codes: Alarms
#define MSAFX_ALARM_0     210
#define MSAFX_ALARM_1     211
#define MSAFX_ALARM_2     212
#define MSAFX_ALARM_3     213
#define MSAFX_ALARM_4     214
#define MSAFX_ALARM_5     215
#define MSAFX_ALARM_6     216
#define MSAFX_ALARM_7     217
#define MSAFX_ALARM_8     218
#define MSAFX_ALARM_9     219

// MSA Sound Codes: Beeps
#define MSAFX_BEEP_0      220
#define MSAFX_BEEP_1      221
#define MSAFX_BEEP_2      222
#define MSAFX_BEEP_3      223
#define MSAFX_BEEP_4      224
#define MSAFX_BEEP_5      225
#define MSAFX_BEEP_6      226
#define MSAFX_BEEP_7      227
#define MSAFX_BEEP_8      228
#define MSAFX_BEEP_9      229

// MSA Sound Codes: Biological
#define MSAFX_BIO_0           230
#define MSAFX_BIO_1           231
#define MSAFX_BIO_2           232
#define MSAFX_BIO_3           233
#define MSAFX_BIO_4           234
#define MSAFX_BIO_5           235
#define MSAFX_BIO_6           236
#define MSAFX_BIO_7           237
#define MSAFX_BIO_8           238
#define MSAFX_BIO_9           239

// MSA Sound Codes: DTMF
#define MSAFX_DTMF_0      240
#define MSAFX_DTMF_1      241
#define MSAFX_DTMF_2      242
#define MSAFX_DTMF_3      243
```

```
#define MSAFX_DTMF_4      244
#define MSAFX_DTMF_5      245
#define MSAFX_DTMF_6      246
#define MSAFX_DTMF_7      247
#define MSAFX_DTMF_8      248
#define MSAFX_DTMF_9      249
#define MSAFX_DTMF_S      250
#define MSAFX_DTMF_R      251

// MSA Sound Codes: Misc
#define MSAFX_SONAR_PING  252
#define MSAFX_PISTOLSHOT  253
#define MSAFX_WOW         254

// 255: End of Phrase
#ifdef _DEBUG_C
    #pragma mark MSA EOP
#endif

#define MSA_EOP               255









// <<--- Application related defines --->>

// SCP ControlTypes
// realtime announces single SCP messages like "Clear Buffer"
// register is used for 3-part-msgs: select register, select memtype and
write value
#define SCP_CTRLTYPE_REALTIME     0x0
#define SCP_CTRLTYPE_REGISTER     0x1

// Articulation ControlTypes
#define ARTICULATION_JAW          0x1
#define ARTICULATION_TONGUE           0x2
#define ARTICULATION_GLOTTIS      0x3

// OSC Harmonic Waveshapes
#define OSCSYNTH_WAVE_TRIANGLE        0
#define OSCSYNTH_WAVE_SQUARE      1
#define OSCSYNTH_WAVE_SAW         2
```

```
#endif /* _IIC_SPEAKJETDEFINES_H */
```