SCP and MSA #defines for the SpeakJet

```c
/*
 *  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'
```

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#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'
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// == 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
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#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
```

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#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
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#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
```

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#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 */
```

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Last update: **2006/12/05 14:28**