Quick Reference Guide for Propeller Spin Language

Elements marked with a superscript "a" are also available in Propeller Assembly.

Block Designators		
CON	Declare constant block	194
VAR	Declare variable block	315
OBJ	Declare object reference block	247
PUB	Declare public method block	287
PRI	Declare private method block	286
DAT	Declare data block	208

Configuration		
CHIPVER	Propeller chip version number	174
CLKMODE	Current clock mode setting	179
_CLKMODE	Application-defined clock mode (read-only)	180
CLKFREQ	Current clock frequency	175
_CLKFREQ	Application-defined clock frequency (read-only)	177
CLKSET[a]	Set clock mode and clock frequency	183
_XINFREQ	Application-defined external clock frequency (read-only)	337
_STACK	Application-defined stack space to reserve (read-only)	307
_FREE	Application-defined free space to reserve (read-only)	218
RCFAST.	Constant for _CLKMODE: internal fast oscillator	180
RCSLOW	Constant for _CLKMODE: internal slow oscillator	180
XINPUT	Constant for _CLKMODE: external clock/osc (XI pin)	180
XTAL1	Constant for _CLKMODE: external low-speed crystal	180
XTAL2	Constant for _CLKMODE: external med-speed crystal	180
XTAL3	Constant for _CLKMODE: external high-speed crystal	180
PLL1X	Constant for _CLKMODE: external frequency times 1	180
PLL2X	Constant for _CLKMODE: external frequency times 2	180
PLL4X	Constant for _CLKMODE: external frequency times 4	180
PLL8X	Constant for _CLKMODE: external frequency times 8	180
PLL16X	Constant for _CLKMODE: external frequency times 16	180

Cog Control		
COGID[a]	Current cog's ID (0-7)	186
COGNEW	Start the next available cog	189
COGINIT[a]	Start, or restart, a cog by ID	187
COGSTOP[a]	Stop a cog by ID	193
REBOOT	Reset the Propeller chip	292

Process Control		
LOCKNEW[a]	Check out a new lock	230
LOCKRET[a]	Release a lock	233
LOCKCLR[a]	Clear a lock by ID	228
LOCKSET[a]	Set a lock by ID	234
WAITCNT[a]	Wait for System Counter to reach a value	322
WAITPEQ[a]	Wait for pin(s) to be equal to value	326
WAITPNE[a]	Wait for pin(s) to be not equal to value	328
WAITVIDa[a]	Wait for video sync and deliver next color/pixel group	329

Flow Control		
IF	Conditionally execute one or more blocks o code	220
IFNOT	Conditionally execute one or more blocks of code	225
CASE …ELSEIF …ELSEIFNOT …ELSE …OTHER …ELSEIF …ELSEIFNOT …ELSE	Evaluate expression and execute block of code that satisfies a condition	171
REPEAT …FROM …TO …STEP …UNTIL …WHILE	Execute block of code repetitively an infinite or finite number of times with optional loop counter, intervals, exit and continue conditions	293
NEXT	Skip rest of REPEAT block and jump to next loop iteration	246
QUIT	Exit from REPEAT loop	291
RETURN	Exit PUB/PRI with normal status and optional return value;	301
ABORT	Exit PUB/PRI with abort status and optional return value	161

Memory		
BYTE	Declare byte-sized symbol or access byte of main memory	165
WORD	Declare word-sized symbol or access word of main memory	331
LONG	Declare long-sized symbol or access long of main memory	236
BYTEFILL	Fill bytes of main memory with a value	169
WORDFILL	Fill words of main memory with a value	335
LONGFILL	Fill longs of main memory with a value	240
BYTEMOVE	Copy bytes from one region to another in main memory	170
WORDMOVE	Copy words from one region to another in main memory	336
LONGMOVE	Copy longs from one region to another in main memory	241
LOOKUP	Get value at index (1..N) from a list	244
LOOKUPZ	Get value at zero-based index (0..N−1) from a list	244
LOOKDOWN	Get index (1..N) of a matching value from a list	242
LOOKDOWNZ	Get zero-based index (0..N−1) of a matching value from a list	242
STRSIZE	Get size of string in bytes	311
STRCOMP	Compare a string of bytes against another string of bytes	308

Directives		
STRING	Declare in-line string expression; resolved at compile time	310
CONSTANT	Declare in-line constant expression; resolved at compile time	200
FLOAT	Declare floating-point expression; resolved at compile time	216
ROUND	Round compile-time floating-point expression to integer	303
TRUNC	Truncate compile-time floating-point expression at decimal	314
FILE	Import data from an external file	215

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Registers		
DIRA[a]	Direction Register for 32-bit port A	212
DIRB[a]	Direction Register for 32-bit port B (future use)	212
INA[a]	Input Register for 32-bit port A (read only)	225
INB[a]	Input Register for 32-bit port B (read only) (future use)	226
OUTA[a]	Output Register for 32-bit port A	280
OUTB[a]	Output Register for 32-bit port B (future use)	282
CNT[a]	32-bit System Counter Register (read only)	184
CTRA[a]	Counter A Control Register	204
CTRB[a]	Counter B Control Register	204
FRQA[a]	Counter A Frequency Register	219
FRQB[a]	Counter B Frequency Register	219
PHSA[a]	Counter A Phase-Locked Loop (PLL) Register	285
PHSB[a]	Counter B Phase-Locked Loop (PLL) Register	285
VCFG[a]	Video Configuration Register	317
VSCL[a]	Video Scale Register	320
PAR[a]	Cog Boot Parameter Register (read only)	283
SPR	Special-Purpose Register array; indirect cog register access	305

Constants		
TRUE[a]	Logical true: -1 ($FFFFFFFF)	202
FALSE[a]	Logical false: 0 ($00000000)	202
POSX[a]	Maximum positive integer: 2,147,483,647 ($7FFFFFFF)	202
NEGX[a]	Maximum negative integer: -2,147,483,648 ($80000000)	202
Pi[a]	Floating-point value for PI: ~3.141593 ($40490FDB)	202

Variable		
RESULT	Default result variable for PUB/PRI methods	299

Unary Operators		
+	Positive (+X); unary form of Add	256
-	Negate (-X); unary form of Subtract	256
- -	Pre-decrement (--X) or post-decrement (X--) and assign	257
+ +	Pre-increment (++X) or post-increment (X++) and assign	257
^^	Square root	261
||	Absolute Value	261
~	Sign-extend from bit 7 (~X) or post-clear to 0 (X~)	262
~~	Sign-extend from bit 15 (~~X) or post-set to -1(X~~)	263
?	Random number forward (?X) or reverse (X?)	264
|<	Decode value (modulus of 32; 0-31) into single-high-bit long	265
>|	Encode long into magnitude (0 - 32) as high-bit priority	266
!	Bitwise: NOT	272
NOT	Boolean: NOT (promotes non-0 to -1)	274
@	Symbol address	278
@@	Object address plus symbol value	279

Binary Operators **NOTE: All right-column operators are assignment operators.**				
=	*and*	=	Constant assignment (CON blocks)	254
:=	*and*	:=	Variable assignment (PUB/PRI blocks)	255
+	*or*	+=	Add	255
-	*or*	-=	Subtract	256
*	*or*	*=	Multiply and return lower 32 bits (signed)	258
*	*or*	**=	Multiply and return upper 32 bits (signed)	259
/	*or*	/=	Divide (signed)	259
//	*or*	//=	Modulus (signed)	259
#>	*or*	#>=	Limit minimum (signed)	260
<#	*or*	<#=	Limit maximum (signed)	261
~>	*or*	~>=	Shift arithmetic right	264
<<	*or*	<<=	Bitwise: Shift left	266
>>	*or*	>>=	Bitwise: Shift right	267
<-	*or*	<-=	Bitwise: Rotate left	267
->	*or*	->=	Bitwise: Rotate right	268
><	*or*	><=	Bitwise: Reverse	268
&	*or*	&=	Bitwise: AND	269
|	*or*	|=	Bitwise: OR	270
^	*or*	^=	Bitwise: XOR	271
AND	*or*	AND=	Boolean: AND (promotes non-0 to –1)	272
OR	*or*	OR=	Boolean: OR (promotes non-0 to –1)	273
= =	*or*	= = =	Boolean: Is equal	275
<>	*or*	<>=	Boolean: Is not equal	275
<	*or*	<=	Boolean: Is less than (signed)	276
>	*or*	>=	Boolean: Is greater than (signed)	276
=<	*or*	=<=	Boolean: Is equal or less (signed)	277
=>	*or*	=>=	Boolean: Is equal or greater (signed)	277

Syntax Symbols		
%	Binary number indicator, as in %1010	312
%%	Quaternary number indicator, as in %%2130	312
$	Hexadecimal number indicator, as in $1AF	312
"	String designator "Hello"	312
_	Group delimiter in constant values, or underscore in symbols	312
#	Object-Constant reference: obj#constant	312
.	Object-Method reference: obj.method(param) or decimal point	312
..	Range indicator, as in 0..7	312
:	Return separator: PUB method : sym, or object assignment, etc.	312
|	Local variable separator: PUB method | temp, str	313
\	Abort trap, as in \method(parameters)	313
,	List delimiter, as in method(param1, param2, param3)	313
( )	Parameter list designators, as in method(parameters)	313
[ ]	Array index designators, as in INA[2]	313
{ }	In-line/multi-line code comment designators	313
{{ }}	In-line/multi-line document comment designators	313
'	Code comment designator	313
''	Document comment designator	313