

1164 PACKAGES QUICK REFERENCE CARD

	Optional	Alternative	User Identifier	commutative			OGIC	OR	~					::= SMALL_INT (subtype INTEGER range 0 to 1)
Revision 2.2	=	_	CAPS	ပ		'OR	GIC/STD_L	GIC_VECT	IC_VECTO	۵				IT (subtype II
Re	Grouping	Repeated	Asis	VHDL-93	::= BIT	::= BIT_VECTOR	::= STD_ULOGIC/STD_LOGIC	::= STD_ULOGIC_VECTOR	::= STD_LOGIC_VECTOR	::= UNSIGNED	::= SIGNED	::= INTEGER	::= NATURAL	::= SMALL_IN
	0	\$	pold	italic	Ф	ģ	7	À	<u>></u>	S	sg	.⊑	na	sm

1.IEEE'S STD_LOGIC_1164

1.1 Logic Values	Uninitialized	Strong/Weak unknown	Strong/Weak 0	Strong/Weak 1	High Impedance	Don't care	
1.1 Log	Ç	.M./.X,	,0,L,	'1 <i>"</i> /H'	ź	Ç	

1.2 PREDEFINED TYPES

STD_ULOGIC	Base type
Subtypes:	
STD_LOGIC	Resolved STD_ULOGIC
X01	Resolved X, 0 & 1
X01Z	Resolved X, 0, 1 & Z
UX01	Resolved U, X, 0 & 1

Resolved U, X, 0, 1 & Z UX01Z

Array of STD_ULOGIC Array of STD_LOGIC STD_ULOGIC_VECTOR(na to | downto na) STD_LOGIC_VECTOR(na to | downto na)

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1.3 OVERLOADED OPERATORS

Right	u/l,uv,lv	u/I,uv,lv	u/l,uv,lv	u/l,uv,lv
Operator	and, nand	or, nor	xor, xnor	not
Left	u/l,uv,lv	u/l,uv,lv	u/l,uv,lv	
Description	bitwise-and	bitwise-or	bitwise-xor	bitwise-not

1.4 Conversion Functions

	Function	TO_BIT(from[, xmap])	TO_BITVECTOR(from[, xmap])	TO_STDULOGIC(from)	TO_STDLOGICVECTOR(from)	TO STDULOGICVECTOR (from)
	ပ	q	þ	n	<u>></u>	2
5	From	l/n	uv,lv	q	bv,uv	N/

2.IEEE'S NUMERIC_STD

2.1 PREDEFINED TYPES

Array of STD_LOGIC	Array of STD_LOGIC
UNSIGNED(na to downto na)	SIGNED(na to downto na)

2.2 OVERLOADED OPERATORS

FKAIOKS	Right Return	6s 6s	bs bs	un un pc	bs bs po	od _c na un	.⊑	lood un	lood gs	c na bool	c in bool
OVERLOADED OPERAIORS	ft Op	abs		+,-,*,/,rem,mod	+,-,*,/,rem,mod	+,-,*,/,rem,mod _c	+,-,*,/,rem,mod _c	=/:=:<:>	=/:=:=>:<:>	-/:='=>'>	<,>,<=,>=,=,/= c
7.7	Left			n	sg	n	sg	n	sg	n	sg

2.3 PREDEFINED FUNCTIONS

S S	sg	sd	un	un	Sg	sg	sg	un	pool	pool	pool	pool	lood
SHIFT_LEFT(un, na) SHIFT_RIGHT(un, na)		SHIFT_RIGHT(sg, na)	ROTATE_LEFT(un, na)	ROTATE_RIGHT(un, na)	ROTATE_LEFT(sg, na)	ROTATE_RIGHT(sg, na)	RESIZE(sg, na)	RESIZE(un, na)	STD_MATCH(u/l, u/l)	STD_MATCH(uv, uv)	STD_MATCH(IV, IV)	STD_MATCH(un, un)	STD_MATCH(sg, sg)

2.4 Conversion Functions

Function	SIGNED(from)	UNSIGNED(from)	STD_LOGIC_VECTOR(from)	TO_INTEGER(from)	TO_UNSIGNED(from, size)	TO_SIGNED(from, size)
ပ	sg	n	<u>></u>	.⊑	u	sg
From	vl,nu	sg,lv	nn,sg	nn,sg	na	.⊑

3.IEEE'S NUMERIC_BIT

3.1 PREDEFINED TYPES

a) Array of BIT	
UNSIGNED (na to downto na)	SIGNED(na to I downto na)

3.2 OVERLOADED OPERATORS

Right Return	sg gs	sg sg	un un	sg gs	na un	in sg	lood un	lood gs	na bool	lood ni
ð	abs		+,-,*,/,rem,mod	+,-,*,/,rem,mod	+,-,*/,rem,mod _c	+,-, * ,/,rem,mod $_c$	<,>,<,=,==,=,=/=	<,>,<,=,=,=,=,=	<,>,<=,>=,=,= c	<,>,<=,>=,=,= _C
Left			⊑	sg	<u>_</u>	sg	<u> </u>	sg	<u> </u>	sg

3.3 PREDEFINED FUNCTIONS

)	un	un	sg	sg	un	un	sg	sg	sg	un
	SHIFT_LEFT(un, na)	SHIFT_RIGHT(un, na)	SHIFT_LEFT(sg, na)	SHIFT_RIGHT(sg, na)	ROTATE_LEFT(un, na)	ROTATE_RIGHT(un, na)	ROTATE_LEFT(sg, na)	ROTATE_RIGHT(sg, na)	RESIZE (sg, na)	RESIZE(un, na)

3.4 CONVERSION FUNCTIONS

Function	SIGNED(from)	UNSIGNED(from)	BIT_VECTOR(from)	TO_INTEGER(from)	TO_UNSIGNED(from)	TO SIGNED(from)
2	sg	n	à	.⊑	'n	SQ
From	vq'un	sg,bv	nn,sg	nn,sg	na	.⊑

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