MACHINE
BIT_VECTOR_ARITHMETICS

SEES
BIT_DEFINITION,
BIT_VECTOR_DEFINITION,
POWER2

CONSTANTS
bv_to_nat
,*bv_par*

PROPERTIES
$bv\_to\_nat \in BIT\_VECTOR \rightarrow \mathcal{N}$
$\wedge\ bv\_to\_nat = \lambda\ (bv).\ (bv \in BIT\_VECTOR \mid (\ \sum\ idx\ .\ (idx \in \mathbf{dom}(bv) \mid (2) \times bv(idx))))$

$\wedge \quad bv\_par \in BIT\_VECTOR \rightarrow BIT$
$\wedge\ bv\_par = \lambda\ (bv).(bv \in BIT\_VECTOR \mid \mathbf{size}(bv \rhd \{1\})\ \mathbf{mod}\ 2)$

ASSERTIONS
$\forall\ ss.\ (ss \in \mathcal{N}_1 \Rightarrow (bv\_to\_nat(bv\_zero(ss)) = 0))$
$\wedge\ \forall\ ss.\ (ss \in \mathcal{N}_1 \Rightarrow (bv\_par(bv\_zero(ss)) = 0))$

END