MACHINE
    $BIT\_VECTOR\_ARITHMETICS$

SEES
    $BIT\_DEFINITION$,
    $BIT\_VECTOR\_DEFINITION$

CONSTANTS
    bv_to_nat

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

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

END