

## Supporting Information

### Robust Ferromagnetism and Weyl Half-Semimetal in Two-Dimensional Vanadium Borides Monolayer

Table S1. Character table for  $C_{2v}$  and  $C_s$  point groups which are adopted from irvsp software.

$C_{2v}$	$E$	$C_{2z}$	$M_y$	$M_x$	$C_s$	$E$	$M_y$
$\Gamma_1$	1	1	1	1	$\Sigma_1$	1	1
$\Gamma_2$	1	1	-1	-1	$\Sigma_2$	1	-1
$\Gamma_3$	1	-1	-1	1	$\Sigma_3$	1	-i
$\Gamma_4$	1	-1	1	-1	$\Sigma_4$	1	i
$\Gamma_5$	2	0	0	0			

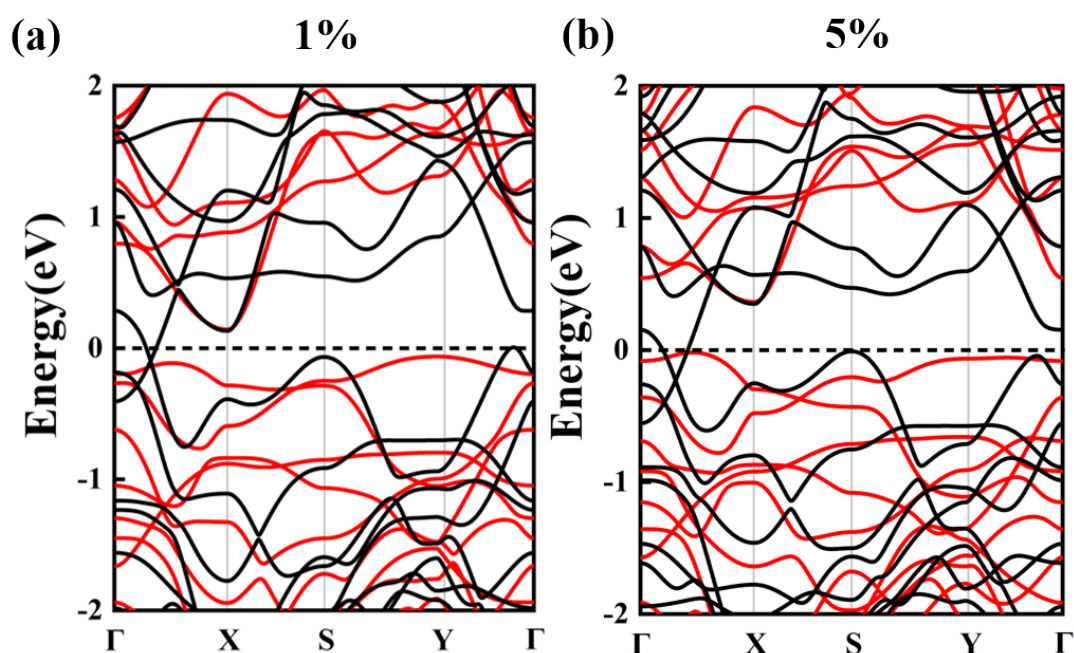


Fig. S1 Band structures of  $VB_{28}$  under (a) 1% and (b) 5% biaxial strains without SOC.

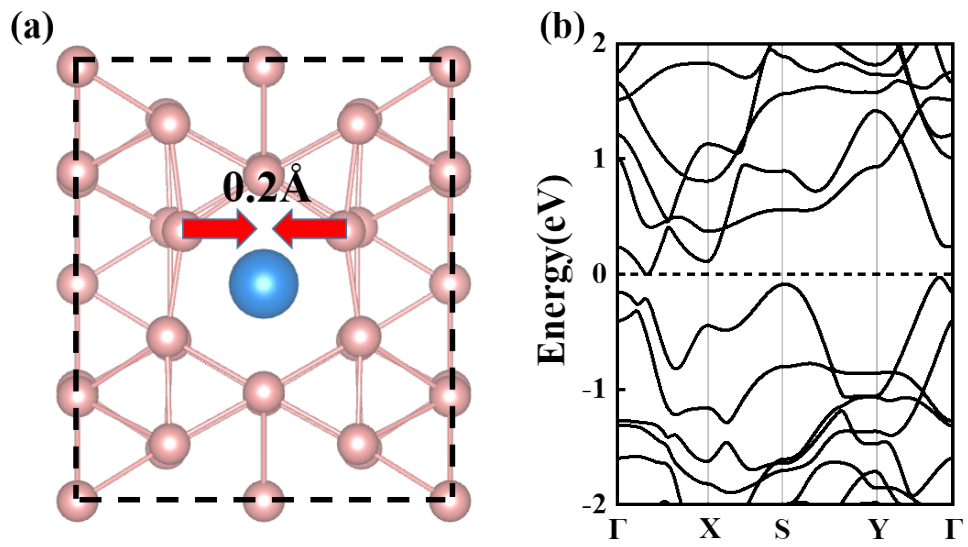


Fig. S2 (a)Top view of the structure with shifting two Born atoms. (b)The band structure of the changed structure in (a).